

**SHARP****SERVICE MANUAL**

SE00LC32LE225

Issued: 22<sup>nd</sup> February 2011**LED LCD COLOUR TELEVISION**CONNECTED TV / DVB-T / DVB-C (HDTV), PAL<sub>B/G, I</sub> / SECAM<sub>B/G, D/K, L/L'</sub> SYSTEM COLOUR TELEVISION

# MODELS

## LC-32LE225E

## LC-32LE225EB

In the interests of user safety (required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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**SHARP CORPORATION**

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The contents are subject to change without notice.

## ELECTRICAL SPECIFICATIONS

## Specifications

Item			32” LCD COLOUR TV, Model: LC-32LE225E
LCD Panel			32” BLACK TFT LCD LED TV
Resolution			6.220.800 dots (1.920 x 1.080 pixels)
Video Colour System			PAL/SECAM/NTSC 3.58/NTSC 4.43/PAL 60
TV Functions	TV Standard	Analogue	CCIR (B/G, I, D/K, L/L')
		Digital	DVB-T (2K/8K OFDM)(H.264), DVB-C
	Receiving Channel	VHF/UHF	E2–E69 ch, F2–F10 ch, I21–I69 ch, IR A–IR J ch (Digital: IR A ch–E69 ch)
		CATV	Hyper-band, S1–S41 ch
	TV-Tuning System		Auto Preset 999 ch: non-Nordic / 9999 ch: Nordic (ATV: 99 ch), Auto Label, Auto Sort
	STEREO / BILINGUAL		NICAM/A2
Viewing angles			H: 176°, V: 176°
Audio Amplifier			10 W x 2
Speaker			(30 mm x 100 mm) x 2
Terminals	TV Antenna		UHF/VHF 75 Ω Din type (Analogue & Digital)
	SERVICE		Ø 3.5 mm jack
	SCART		SCART (AV input, RGB input, TV output, Y/C input)
	PC INPUT		VGA (D-Sub 15pin), Ø 3.5mm jack
	COMPONENTS		COMPONENT IN: Y/PB(CB)/PR(CR), RCA (AUDIO R/L)
	HDMI1		HDMI, Ø 3.5mm jack
	HDMI2		HDMI, Ø 3.5mm jack
	USB WIFI		USB 2.0 HOST (A Type) (Wi-Fi use only)
	ETHERNET (10/100)		Network connector
	AV		RCA connector (AV input)
	MEDIA PLAYER/ TIME-SHIFT/ USB REC		USB 2.0 HOST (A type)
	SPDIF OUT		RCA S/PDIF digital audio output.
	C. I. (Common Interface)		EN50221, R206001, CI+ specification
Headphones		Ø 3.5 mm jack (Audio output)	
OSD language			Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Russian, Slovak, Slovene, Spanish, Swedish, Turkish, Ukrainian, Byelorussian, Romanian.
Power Requirement			AC 220–240 V, 50 Hz
Power Consumption (IEC62087 Method)			93W (0.25 W Standby)
Weight			8,2 Kg (Without stand), 9,5 Kg (With stand)
Operating Temperature			0 °C to +40 °C

## Environmental Specifications

*1 On-Mode (W) (HOME MODE)		70 W
*2 Energy-Save-Mode (W)	ECO	55 W
*3 Standby-Mode (W)		0.25 W
*4 Off Mode (W)		0.18 W
*5 Annual Energy Consumption (kWh)		103 kWh
*6 Annual Energy Consumption Energy-Save-Mode (kWh)	ECO	81 kWh

\*1 Measured according to IEC 62087 Ed. 2.

\*2 For further information about the Energy Save function, please see related pages in this operation manual.

\*3 Measured according to IEC 62301 Ed. 1.

\*4 Measured according to IEC 62301 Ed. 1.

\*5 Annual energy consumption is calculated on the basis of the On-Mode (HOME MODE) power consumption, watching TV 4 hours a day, 365 days a year.

\*6 Annual energy consumption is calculated on the basis of the Energy-Save-Mode power consumption, watching TV 4 hours a day, 365 days a year.

## Cautions regarding use in high and low temperature environments

- When the unit is used in a low temperature space (e.g. room, office), the picture may leave trails or appear slightly delayed. This is not a malfunction, and the unit will recover when the temperature returns to normal.
- Do not leave the unit in a hot or cold location. Also, do not leave the unit in a location exposed to direct sunlight or near a heater, as this may cause the cabinet to deform and the LCD panel to malfunction. Storage temperature: –20°C to +60°C.

- As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.



## ELECTRICAL SPECIFICATIONS (continued)

### Specifications (Wireless LAN USB adapter)

Product name			Single Band 802.11n USB2.0 adapter
Standard			IEEE 802.11b/g/n
Host interface			USB 2.0
Frequency band Operating channels			2412-2472MHz CH1~CH13
Security			Static WEP (64/128bit, key index 1 only) WPA-PSK (TKIP) WPA2-PSK (AES)
Modulation			DBPSK@1 Mbps DQPSK@2 Mbps CCK@5.5/11 Mbps BPSK@6/9 Mbps QPSK@12/18 Mbps 16-QAM@24 Mbps 64-QAM@48/54 Mbps and above, Rx up to 300 Mbps
Transmit power and sensitivity	Tx output power (Typical)	2.4GHz	11b 15+/-1.5 dBm 11g 15+/-1.5 dBm 11n 20MHz 15+/-1.0 dBm 11n 40MHz 15+/-1.0 dBm
	Rx sensitivity: (Typical)		-84 dBm@11 Mbps -72 dBm@54 Mbps -64 dBm@64-QAM, 20 MHz channel spacing -61 dBm@64-QAM, 40 MHz channel spacing
Current Consumption (5V DC)			Tx: 380 mA Max Rx: 350 mA Max
Permitted countries* <sup>1</sup>			Austria, Belarus* <sup>2</sup> , Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel* <sup>2</sup> , Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, Russia* <sup>2</sup> , Ukraine* <sup>2</sup>
Weight			15 g
Dimensions			26.6(W) x 73.3 (D) x 10.6 (H) mm
Operating temperature			0°C to + 40°C

\*1 Usage of the wireless LAN USB adapter is permitted for the countries listed.

\*2 LAN USB adapter will be permitted for these country in near future although it has not been permitted yet.

#### NOTE

- This TV has received the following certifications when connected in an environment using the supplied SHARP wireless LAN adapter.
  - Wi-Fi CERTIFIED™ (certification program from the Wi-Fi Alliance®)
  - Wi-Fi Protected Setup™ (certification program from the Wi-Fi Alliance®)

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## IMPORTANT SERVICE SAFETY PRECAUTION

Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:

### WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.

**CAUTION:** FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE REPLACE ONLY WITH SAME TYPE F101 (T3.15AH / 250V)

## BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

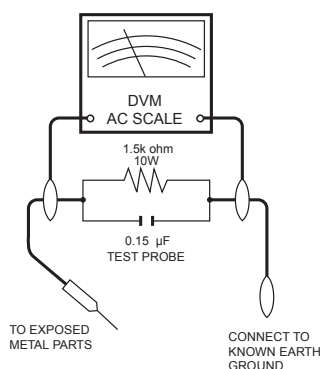
**Before returning the receiver to the user, perform the following safety checks:**

1. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulation materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 220~240 volt AC outlet. (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 $\mu$ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to an earth ground.
  - A true RMS reading multimeter should be used for this test, especially where the equipment uses a switch mode power supply which may result in very non-sinusoidal leakage current.
  - Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC cord plug connection reversed. (If necessary, a nonpolarized adaptor plug must be used only for the purpose of completing these checks.)

Any reading of 1.05V peak (this corresponds to 0.7 mA. peak AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.



## SAFETY NOTICE

Many electrical and mechanical parts in LCD television have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by “ $\triangle$ ”.

For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire or other hazards.

## PRECAUTIONS FOR USING LEAD-FREE SOLDER

### 1 Employing lead-free solder

"ALL PWB" of this model employs lead-free solder. The LF symbol indicates lead-free solder, and is attached on the PWBs and service manuals. The alphabetical character following LF shows the type of lead-free solder.

Example:

**LF**a  
Sn-Ag-Cu

Indicates lead-free solder of tin, silver and copper.

**LF**n  
Sn-Ag-Ni

Indicates lead-free solder of tin, silver and nickel.

### 2 Using lead-free wire solder

When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40°C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

### 3 Soldering

As the melting point of lead-free solder (Sn-Ag-Cu) is about 220°C which is higher than the conventional lead solder by 40°C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

Lead-free solder contains more tin, and the end of the soldering bit may be easily corroded. Make sure to turn on and off the power of the bit as required.

If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing.

Part No.	★	Description	Code
ZHNDAi123250E	J	φ0.3mm 250g(1roll)	BL
ZHNDAi126500E	J	φ0.6mm 500g(1roll)	BK
ZHNDAi12801KE	J	φ1.0mm 1kg(1roll)	BM

## END OF LIFE DISPOSAL



Attention: Your product is marked with this symbol. It means that used electrical and electronic products should not be mixed with general household waste. There is a separate collection system for these products.

### A. Information on Disposal for Users (private households)

#### 1. In the European Union

Attention: If you want to dispose of this equipment, please do not use the ordinary dust bin!

Used electrical and electronic equipment must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of used electrical and electronic equipment.

Following the implementation by member states, private households within the EU states may return their used electrical and electronic equipment to designated collection facilities free of charge\*. In some countries\* your local retailer may also take back your old product free of charge if you purchase a similar new one.

\*) Please contact your local authority for further details.

If your used electrical or electronic equipment has batteries or accumulators, please dispose of these separately beforehand according to local requirements.

By disposing of this product correctly you will help ensure that the waste undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health which could otherwise arise due to inappropriate waste handling.

#### 2. In other Countries outside the EU

If you wish to discard this product, please contact your local authorities and ask for the correct method of disposal.

For Switzerland: Used electrical or electronic equipment can be returned free of charge to the dealer, even if you don't purchase a new product. Further collection facilities are listed on the homepage of [www.swico.ch](http://www.swico.ch) or [www.sens.ch](http://www.sens.ch).

### B. Information on Disposal for Business Users

#### 1. In the European Union

If the product is used for business purposes and you want to discard it:

Please contact your SHARP dealer who will inform you about the take-back of the product. You might be charged for the costs arising from take-back and recycling. Small products (and small amounts) might be taken back by your local collection facilities.

For Spain: Please contact the established collection system or your local authority for take-back of your used products.

#### 2. In other Countries outside the EU

If you wish to discard of this product, please contact your local authorities and ask for the correct method of disposal.



**Pb**

The battery supplied with this product contains traces of Lead.

For EU: The crossed-out wheeled bin implies that used batteries should not be put to the general household waste! There is a separate collection system for used batteries, to allow proper treatment and recycling in accordance with legislation. Please contact your local authority for details on the collection and recycling schemes.

For Switzerland: The used battery is to be returned to the selling point.

For other non-EU countries: Please contact your local authority for correct method of disposal of the used battery.

# OPERATION MANUAL

## Remote control unit

- 1 **Standby/On**  
Enter standby mode or turn on the power.
- 2 **Channel information / EPG**  
(See pages 11 and 22.)
- 3 **MEDIA PLAYER**  
Display the MEDIA PLAYER screen.
- 4 **0-9**  
Set the channel in TV mode.  
Set the page in Teletext mode.  
Alphanumeric use on Connected TV mode.

When one of the 5 Nordic countries (Sweden, Norway, Finland, Denmark or Iceland) is selected in the country setting of Auto Installation, DTV channels are 4 digits. When another country is selected, DTV channels are 3 digits.

- 5 **Flashback**  
Press to return to the previous selected channel or external input mode.
- 6 **DTV**  
Change between ATV→DTV or ATV←CADTV mode.
- 7 **Picture format/Backspace**  
Change between different picture formats (see page 23).  
Backspace function on Connected TV mode. (See page 26.)
- 8 **TimeShift / Play-Pause**  
Activate or deactivate the TimeShift. Start / stop the reproduction.
- 9 **▲ / ▼ / ◀ / ▶ (Cursor)**  
TV mode: Select a desired item on the setting screen.  
ATV: Select the TELETEXT mode (See page 12).  
DTV/CADTV: Select DTV/CADTV (MHPEG-5) data broadcasting or TELETEXT.

- 10 **END**  
Exit the menu screen.
- 11 **EPG**  
DTV/CADTV: To display EPG

- 12 **Freeze / Hold / Search**  
Execute a command within the menu screen.  
ATV/DTV or ATV/CADTV mode: Freeze a picture (TV) or the Teletext on the screen (See page 12)
- 13 **SLEEP**  
Set the sleep timer on (in units of 10 min. up to max. 4 hr) and off. (See page 22.)
- 14 **REC LIST**  
Shows list of recorded programs. (See page 31.)

- 15 **Using  $\frac{VOLUME}{1/2/H/4}$  on the remote control unit**  
DTV/CADTV mode:  
Press  $\frac{VOLUME}{1/2/H/4}$  to open the multi audio screen. (See page 10.)

### Analogue TV mode:

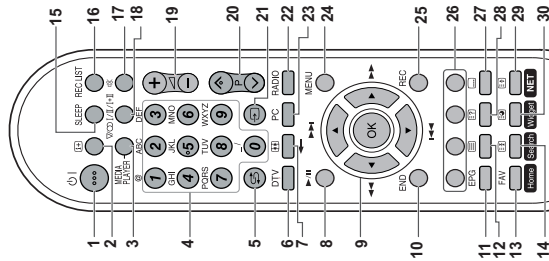
Each time you press  $\frac{VOLUME}{1/2/H/4}$ , the mode switches as illustrated in the following tables:

#### NICAM TV broadcasts selection

Signal	Selectable items
Stereo	NICAM STEREO, MONO
Bilingual	NICAM CH A, NICAM CH B, NICAM CH AB, MONO
Monoaural	NICAM MONO, MONO

#### A2 TV broadcasts selection

Signal	Selectable items
Stereo	STEREO, MONO
Bilingual	CHA, CH B, CHAB
Monoaural	MONO



(Electronic Programme Guide) screen.

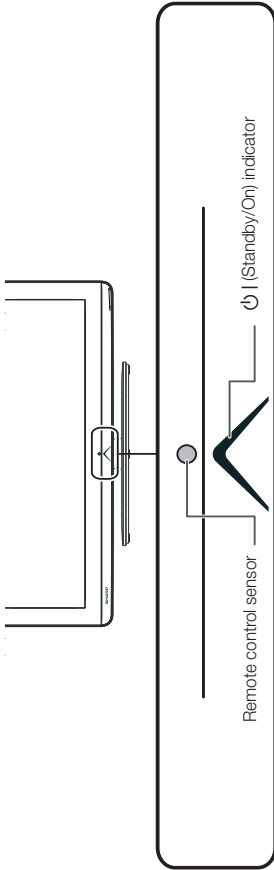
- 12 **Teletext**  
ATV: Select the TELETEXT mode (See page 12).  
DTV/CADTV: Select DTV/CADTV (MHPEG-5) data broadcasting or TELETEXT.
- 13 **FAV / Home**  
Shows the favourite list.  
Back to HOME on Connected TV mode.
- 14 **Freeze / Hold / Search**  
Execute a command within the menu screen.  
ATV/DTV or ATV/CADTV mode: Freeze a picture (TV) or the Teletext on the screen (See page 12)
- 15 **SLEEP**  
Set the sleep timer on (in units of 10 min. up to max. 4 hr) and off. (See page 22.)
- 16 **REC LIST**  
Shows list of recorded programs. (See page 31.)

### Using $\frac{VOLUME}{1/2/H/4}$ on the remote control unit

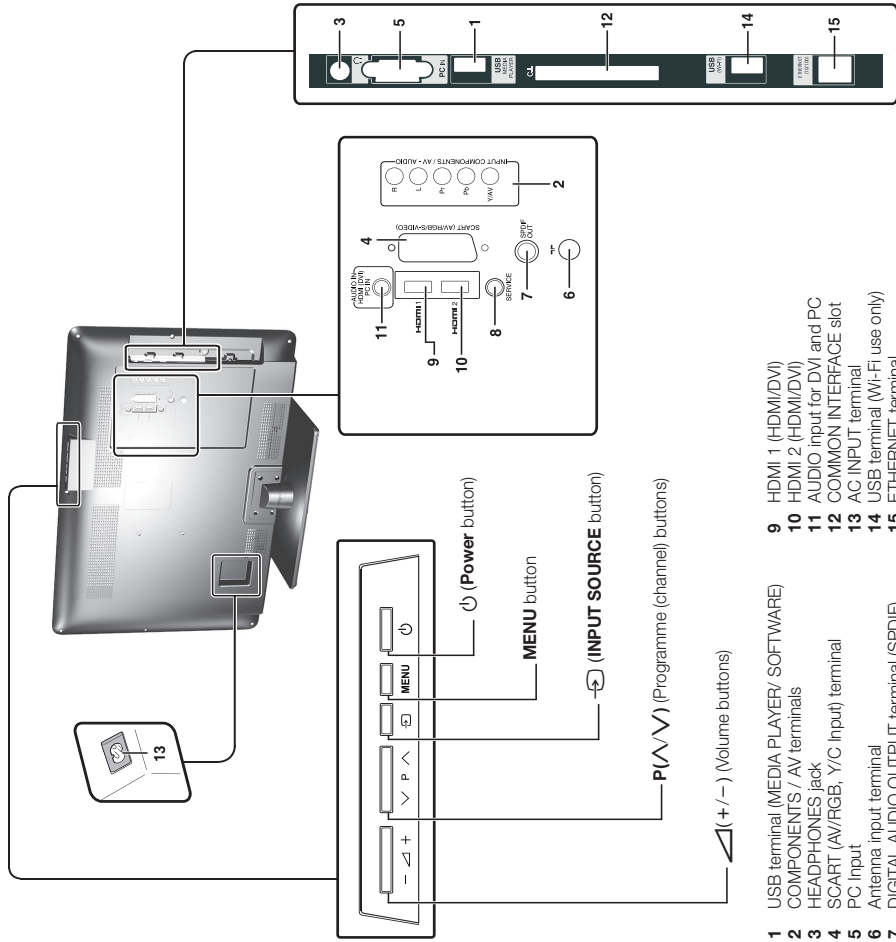
- 15 **Using  $\frac{VOLUME}{1/2/H/4}$  on the remote control unit**  
DTV/CADTV mode:  
Press  $\frac{VOLUME}{1/2/H/4}$  to open the multi audio screen. (See page 10.)

- 17 **Mute**  
Switch the sound on and off.
- 18 **Audio mode**  
Select the sound multiplex mode. (See below.)
- 19 **(+/-) Volume**  
(+) Increase the volume.  
(-) Decrease the volume.
- 20 **TV/DTV/CADTV**  
Select the program or move up or down the channel list pages.  
Input source: Switch to TV or DTV or CADTV input mode.  
Teletext: Move to the next/previous page.
- 21 **Input source**  
Select an input source. (See page 10.)
- 22 **RADIO**  
DTV/CADTV: Switch between RADIO and digital mode.  
•Due to the large variation in transmitted volume levels in RADIO mode, some stations will produce distortion if the volume level is set too high.
- 23 **PC**  
Select PC input source (Analogue connection, see page 16.)
- 24 **MENU**  
Display the MENU screen. (See page 18.)
- 25 **REC**  
Starts the USB REC recording.
- 26 **Colour (Red/Green/Yellow/Blue)**  
TELETEXT: Select a page. (See page 12).  
DTV/CADTV: The coloured buttons are used to select correspondingly to the coloured items in the menu screen.
- 27 **Subtitle for Teletext**  
ATV: Subtitles on / off.  
DTV/CADTV: Display the subtitle selection screen. (See page 10 and 12.)
- 28 **Reveal hidden Teletext**  
(See page 12.)
- 29 **Top/Bottom/Full/NET**  
Switch the Teletext image to Top, Bottom or Full.  
Display Connected TV screen. (See page 12.)
- 30 **Subpage/Widget**  
Widget control on Connected TV mode.

## TV (Front view)



## TV (Top and rear view)



- 1 USB terminal (MEDIA PLAYER/ SOFTWARE)
- 2 COMPONENTS / AV terminals
- 3 HEADPHONES jack
- 4 SCART (AV/RGB, Y/C input) terminal
- 5 PC input
- 6 Antenna input terminal
- 7 DIGITAL AUDIO OUTPUT terminal (SPDIF)
- 8 SERVICE connector (jack 3.5mm)
- 9 HDMI 1 (HDMI/DVI)
- 10 HDMI 2 (HDMI/DVI)
- 11 AUDIO input for DVI and PC
- 12 COMMON INTERFACE slot
- 13 AC INPUT terminal
- 14 USB terminal (Wi-Fi use only)
- 15 ETHERNET terminal

# Operation Manual (Continued)

## Preparation

### Inserting the batteries

Before using the TV for the first time, insert two supplied "AA" size zinc-carbon batteries. When the batteries become depleted and the remote control unit fails to operate, replace the batteries with new "AA" size batteries.

- 1 Hold in the tab on the battery cover and pull the cover towards the direction of the arrow.
- 2 Insert two supplied "AA" size batteries.
  - Place batteries with their terminals corresponding to the (+) and (-) indications in the battery compartment.
- 3 Close the battery cover.

#### CAUTION

- Improper use of batteries can result in chemical leakage or explosion. Be sure to follow the instructions below.
- Do not mix batteries of different types. Different types of batteries have different characteristics.
- Do not mix old and new batteries. Mixing old and new batteries can shorten the life of new batteries or cause chemical leakage in old batteries.
- Remove batteries as soon as they have worn out. Chemicals that leak from batteries can cause a rash. If you find any chemical leakage, wipe thoroughly with a cloth.
- The batteries supplied with this product may have a shorter life expectancy due to storage conditions.
- If you will not be using the remote control unit for an extended period of time, remove the batteries from it.
- When replacing the batteries, use zinc-carbon batteries instead of alkaline ones.

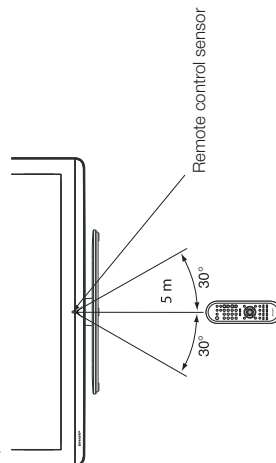
#### Note on disposing batteries:

The batteries provided contain no harmful materials such as cadmium, lead or mercury.

Regulations concerning used batteries stipulate that batteries may no longer be thrown out with the household rubbish. Deposit any used batteries free of charge into the designated collection containers set up at commercial businesses.

### Using the remote control unit

Use the remote control unit by pointing it towards the remote control sensor. Objects between the remote control unit and sensor may prevent proper operation.



### Cautions regarding the remote control unit

- Do not expose the remote control unit to shock. In addition, do not expose the remote control unit to liquids, and do not place in an area with high humidity.
- Do not install or place the remote control unit under direct sunlight. The heat may cause deformation of the unit.
- The remote control unit may not work properly if the remote control sensor of the TV is under direct sunlight or strong lighting. In such cases, change the angle of the lighting or the TV, or operate the remote control unit closer to the remote control sensor.

## Quick guide

### Initial installation overview

Follow the steps below one by one when using the TV for the first time. Some steps may not be necessary depending on your TV installation and connection.

### 1 Preparation

- 1 Connect an antenna cable to the antenna terminal (Page 8).
- 2 If necessary, insert a CA card into the CI slot to watch scrambled broadcasts (Page 8.)
- 3 Connect the AC cord to the TV (Page 8).

### 2 Power on and run the auto installation

- 1 Turn on the power using on the TV (Page 10).
- 2 Run the initial auto installation (Page 9).
  - ✓ Language, country and tune type setting

### 3 Watch TV

- 1 **Congratulations! Now you can watch TV.** If necessary, adjust the antenna to attain maximum signal reception (Page 9).

### Connect external devices

- 1 Connect external devices such as a DVD player/recorder as instructed (Pages 14 and 15).
- 2 Connect external audio devices such as speakers/amplifier as instructed (Pages 14 and 15).

✓ TV Location setting

Home Store

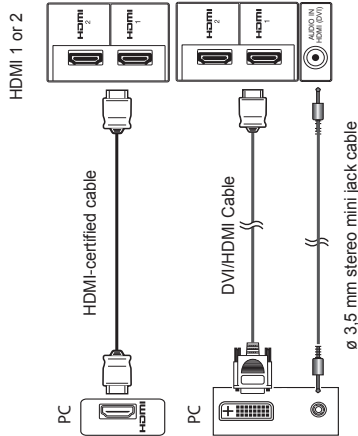
Start searching channels



Connecting a PC

PC connection

HDMI (DVI) Connection



NOTE

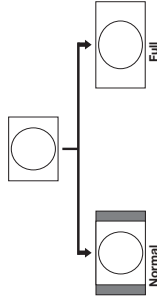
- When using the PC-IN terminal is necessary to connect a audio cable.

Selecting the picture size

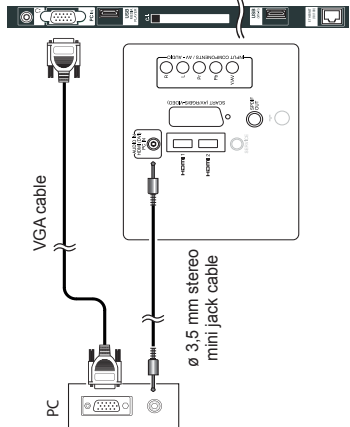
You can select the picture size.

- 1 Press **MENU** on the remote control.
- 2 Press **▼** key to select "**Aspect ratio**".
- 3 Press **▶** key to select the desired item.

Example



Analogue Connection



NOTE

- You can also select an item by pressing **4** on the remote control unit.
- Connect the PC before making adjustments.
- Selectable picture size may vary with input signal type.
- The "**Aspect ratio**" adjustment is only available for analogue signals through the "PC IN" terminal.

Connecting external devices

● Before connecting ...

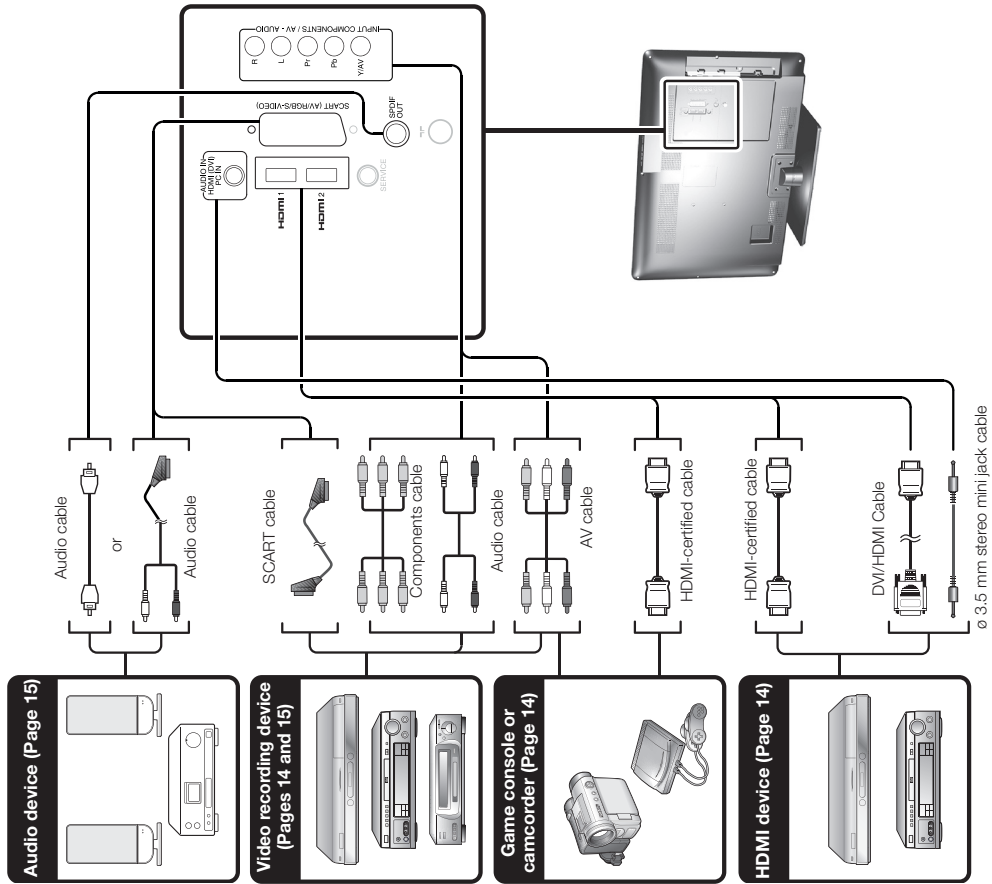
- Be sure to turn off the TV and any devices before making any connections.
- Firmly connect a cable to a terminal or terminals.
- Carefully read the operation manual of each external device for possible connection types. This also helps you get the best possible audiovisual quality to maximise the potential of the TV and the connected device.

Introduction to connections

The TV is equipped with the terminals as shown below. Find the cable corresponding the TV's terminal and connect the device.

NOTE

- The cables illustrated in pages 13, 14 and 15 are commercially available items.



Operation Manual (Continued)

Useful viewing functions

Setting when using external devices

Input source settings

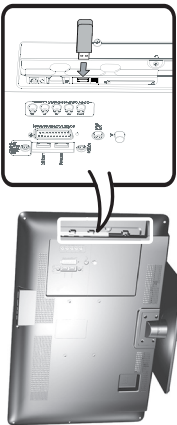


For selecting the input type of external equipment.

- If no (colour) image is displayed, try changing to another signal type.
- Check the operations manual of the external equipment for the signal type.

Connecting a USB device (Media Player)

Connect an USB device to the TV as shown below.



- Depending on the USB device, the TV may not be able to recognise the contained data.
- Use only alphanumeric characters for naming files.
- File names over 80 characters (may vary depending on character set) may not be displayed.
- Do not disconnect a USB device or memory card from the TV while transferring files, using the slide show function, when a screen is switching to another or before you exit "MEDIA PLAYER" from the "INPUT SOURCE" menu.
- Compatibility with USB hard disc connection.
- Do not connect and disconnect a USB device from the TV repeatedly.



MEDIA PLAYER function

After selecting Media Player, the TV loads USB device files, and shows the following screen:



- 1 Pressing ◀/▶ buttons you can change between different modes: **PHOTO**, **MUSIC**, **MOVIE** or **TEXT**. Press **OK** to select the option you want to reproduce.
- 2 Press ▲/▼/◀/▶ to select the folder where you want to search the files and then press **OK**.

PHOTO mode

You can reproduce photos with JPEG (\*.JPE, \*.JPG), BMP and PNG format on your TV.  
Several kinds of reproduction are possible.

- 1 Select **PHOTO** mode and press **OK**.
- 2 Select the file you want to display on full screen with ▲/▼/◀/▶ buttons and press **OK** to start the viewing.

Appendix

Troubleshooting

Problem	Possible Solution
<ul style="list-style-type: none"><li>• No power.</li></ul>	<ul style="list-style-type: none"><li>• Check if you pressed  on the remote control unit.</li><li>• If the indicator on the TV lights up red, press .</li><li>• Is the AC cord disconnected?</li><li>• Check if you pressed  on the TV.</li></ul>
<ul style="list-style-type: none"><li>• The TV cannot be operated.</li></ul>	<ul style="list-style-type: none"><li>• External influences such as lightning, static electricity, etc., may cause improper operation. In this case, operate the TV after first turning off the power, or unplugging the AC cord and re-plugging it in after one or two minutes.</li></ul>
<ul style="list-style-type: none"><li>• Remote control unit does not operate.</li></ul>	<ul style="list-style-type: none"><li>• Are batteries inserted with polarity (+, -) aligned?</li><li>• Are batteries worn out? (Replace with new batteries.)</li><li>• Are you using it under strong or fluorescent lighting?</li><li>• Is a fluorescent light illuminating to the remote control sensor?</li></ul>
<ul style="list-style-type: none"><li>• Picture is cut off.</li></ul>	<ul style="list-style-type: none"><li>• Is the image position correct?</li><li>• Are screen mode adjustments (Aspect ratio) such as picture size made correctly? (Page 23.)</li></ul>
<ul style="list-style-type: none"><li>• Strange colour, light colour, or dark colour, or colour misalignment.</li></ul>	<ul style="list-style-type: none"><li>• Adjust the picture tone.</li><li>• Is the room too bright? The picture may look dark in a room that is too bright.</li><li>• Check the "PICTURE" setting (Page 19).</li></ul>
<ul style="list-style-type: none"><li>• Power is suddenly turned off.</li></ul>	<ul style="list-style-type: none"><li>• The TV's internal temperature has increased.</li><li>• Remove any objects blocking the vent or clean.</li><li>• Is the "Sleep Timer" set? Select "Off" from the "TIME" menu (Page 20).</li><li>• Is No Signal Off or No operation Off activated?</li></ul>
<ul style="list-style-type: none"><li>• No picture.</li></ul>	<ul style="list-style-type: none"><li>• Are connections to external equipment correct? (Pages 13, 14 and 15)</li><li>• Is the input signal type selected correctly after connection? (Page 10)</li><li>• Is the correct input source selected? (Pages 19)</li><li>• Is the picture adjustment correct? (Pages 19)</li><li>• Is the antenna connected properly? (Page 8)</li></ul>
<ul style="list-style-type: none"><li>• No sound.</li></ul>	<ul style="list-style-type: none"><li>• Is the volume too low?</li><li>• Make sure that headphones are not connected.</li><li>• Check if you pressed  on the remote control unit.</li></ul>
<ul style="list-style-type: none"><li>• The TV sometimes makes a cracking sound.</li></ul>	<ul style="list-style-type: none"><li>• This is not a malfunction. This happens when the cabinet slightly expands and contracts according to changes in temperature. This does not affect the TV's performance.</li></ul>

Cautions regarding use in high and low temperature environments

- When the TV is used in a low temperature space (e.g. room, office), the picture may leave trails or appear slightly delayed. This is not a malfunction, and the TV will recover when the temperature returns to normal.
- Do not leave the TV in a hot or cold location. Also, do not leave the TV in a location exposed to direct sunlight or near a heater, as this may cause the cabinet to deform and the LCD panel to malfunction.  
Storage temperature: -20 °C to +60 °C.

Information on the software license for this product

Software composition

The software included in this product is comprised of various software components whose individual copyrights are held by SHARP or by third parties.

Software developed by SHARP and/or third part

The copyrights for the software components and various relevant documents included with this product that were developed or written by SHARP are owned by SHARP and are protected by the Copyright Act, international treaties, and other relevant laws. This product also makes use of freely distributed software and software components whose copyrights are held by third parties.

Fixing the TV on a wall

- **This TV should be fixed on a wall only with the wall fix bracket available from SHARP (Page 5). The use of other wall fix brackets may result in an unstable installation and may cause serious injuries.**
- **Fixing the LCD colour TV requires special skills and should only be performed by qualified service personnel. Customers should not attempt to do the work themselves. SHARP bears no responsibility for improper fixing or fixing that results in accident or injury.**
- You can ask qualified service personnel about using an optional bracket to fix the TV on a wall.
- To use this TV fixed on a wall, first remove the adhesive tape at the two locations on the rear of the TV, and then use the screws supplied with the wall fix bracket to secure the bracket to the rear of the TV.
- When you fix the TV on a wall, you should attach the supporting post.

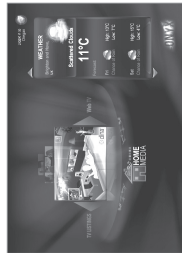


## Connected TV

### What is Connected TV?

AQUOS Net is the feature that offers our **Connected TV** set to play easily digital media contents coming from the Network (Internet or Home). **Connected TV** offers up to three different modes through the ONYX Media Browser:

- 1. WEB TV:** Internet services support (BBC iPlayer, YouTube, Flickr and such more) as multicast IPTV as well as VOD (Video-on-Demand).
  - 2. Widgets:** WebPages and Widgets Carousel tailored specially for your TV set (Weather, News, Sports, Facebook, Twitter and such more) using popup style over User Interface or Live video.
  - 3. HOME MEDIA:** Media Streaming support for existing DLNA servers on your Home Network. In fact, user can play movies, listen to music or view pictures in the easiest way, even from playlist files.
- Connected TV provides a variety of services for each country.



### NOTE

- Because Connected TV is an online system, it can be modified over time to better serve its purpose.
- Some Connected TV services may be added, changed or discontinued after some time.
- You cannot download and save neither files nor install plugins.
- HOME MEDIA requires external streaming media software installed on a PC, inside the HOME Network, that is not included with Connected TV.
- HOME MEDIA server software as Windows Media Player 11 (Windows Vista included) or Windows Media Player 12 (Windows 7 included), Versity (www.versity.com), Nero Media Home (www.nero.com), or Iwony Media Manager (www.iwony.com) are preferred but other can be used also. Visit the DLNA website (www.dlna.org) to see the certified media server list. Follow the server software's user manual for setup, share and stream media contents.
- HOME MEDIA (Video, Music and Photo) data is organized in folders depending on the Server hierarchy; options such as Artist, Genre, Composer, Ratings, Playlist or Watch Folders may be present for sorting content, but can be different depending of the selected Media Server.
- For enjoying of a Slideshow with background music, please select first the music folder or playlist on HOME MEDIA music server, press END on remote, and then select HOME MEDIA Photo server for browsing desired folder and initiate the slideshow.
- The "Play To" function of some PC Media Players may result in very compressed video quality. For best video quality, please use the USB Media Player function of the TV.

### DISCLAIMERS

- SHARP corporation bears no responsibility regarding the content and quality of the content provided by the content service provider.

### Internet setup

#### Connecting to the internet

To enjoy Connect TV, you need to connect the TV to a router with a high speed connection to the internet. The TV connection to the router can either be wired or wireless.

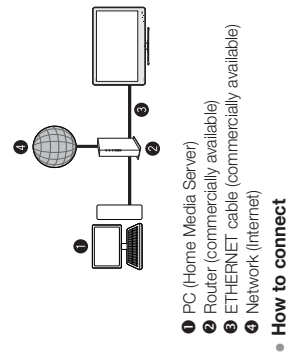
### NOTE

- If you choose a wired connection to the router, you need an ETHERNET cable (not included, commercially available).
- If you do not have a broadband internet connection, consult the store where you purchased your TV or ask your internet service provider or telephone company.
- An ETHERNET and wireless connection cannot be used at the same time. Use only one of the connection types.
- A wireless LAN connection and performance cannot be guaranteed for all residential environments. In the following cases, the wireless LAN signal may be poor or drop, or the connection speed may become slower.
  - When used in buildings made with concrete, reinforced steel, or metal.
  - When placed near objects that obstruct the signal.
  - When used with other wireless devices that emit the same frequency.
  - When used in the vicinity of microwave ovens and other devices that emit a magnetic field, electrostatic charge, or electromagnetic interference.
- A stable connection speed is required to play back streaming content. Use an ETHERNET connection if the wireless LAN speed is unstable.

### Wired installation

Use an ETHERNET cable to connect the ETHERNET terminal on the TV to your broadcast router as shown below. This is recommended when enjoying services which require stable connection speeds, such as streaming media.

### Wired connection overview



### How to connect



- 1 Switch on the router (commercially available). Refer to

### Connected TV

the router's operation manual for switching on.

- 2 Connect the ETHERNET terminal on the TV to the router (commercially available) with an ETHERNET cable (commercially available).

- 3 Go to "NET" > "SETTINGS" > "Network" > "Connection type".

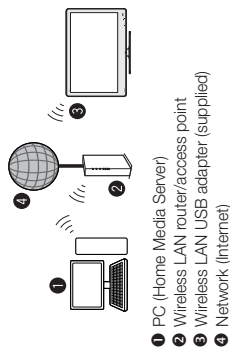
- 4 Press OK and ▲/▼ to select "Wired", and then press OK.

- The wired connection will be automatically established if you select "Automatic IP" in IP Address box. To change the settings manually use "Fixed IP" and follow the on-screen instructions and the operation manual of the router.
- 5 Select "Apply" to confirm.

### Wireless installation

Use the USB adapter supplied with the TV.

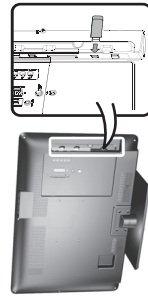
### Wireless connection overview



### NOTE

- When using the Sharp wireless LAN adapter (supplied), try to provide as much free space around the device for best performance.
- Make sure the firewalls in your network allows access to the TV wireless connection.
- Operations cannot be guaranteed when used with access points that do not have Wi-Fi@ certification.
- A wireless LAN access point is required to connect the TV to the internet using a wireless LAN. See the operation manual of your access point for setup.

### How to connect



- 1 Switch on your router before starting the network installation.
- 2 Connect the USB adapter (supplied) to the USB Wi-Fi port on the TV.
  - Do not use a wireless LAN adapter other than the supplied Sharp wireless LAN adapter, as operations cannot be guaranteed.
  - If your wireless network is secured, have the encryption key ready to enter on screen.
- 3 Go to "NET" > "SETTINGS" > "Network" > "Connection type".
- 4 Press OK and ▲/▼ to select "Wireless", and then press OK.

- The wireless connection will be automatically established if you select "Automatic IP" in IP Address box. To change the settings manually use "Fixed IP" and follow the on-screen instructions and the operation manual of the router.

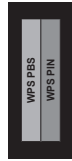
- 5 Select the network you want to connect from the Network name list (SSID). If no one is available use "Rescan Wi-Fi".

- 6 Press ◀▶ to select "WPS", and then press OK.



- 7 Press ▲/▼ to select "WPS PBS", and then press OK.

- To establish the connection manually, select "WPS PIN". Follow the on-screen instructions and the operation manual of the router/access point.



- 8 Press the WPS button on the router/access point. Wait until the connection is established.

- 9 Select "OK" when the connection details are displayed.

- If connection failed, please be sure WPS feature is enabled (See the operation manual of your access point for setup.) After confirm repeat item 6.

- 10 In case of router/access point does not support WPS, write the encryption key for that network using alphanumeric keys on remote control.

- 11 Select "Apply" to confirm.

### NOTE

- To connect your TV to the internet, you must have a broadband internet connection.
- If you do not have a broadband internet connection, consult the store where you purchased your TV or ask your internet service provider or telephone company.
- There is no need to enter the security key for subsequent connections to the wireless network.
- If your access point is set to a stealth mode (Hidden SSID, that prevents detection by other devices), you may not be able to establish a connection. In this case, disable the stealth mode on the access point.
- To change wireless LAN connection settings, go to "NET" > "SETTINGS" > "Network".
- See page 29 to check the supplied SHARP wireless LAN adapter specifications.
- Any low bandwidth adapter (router, hub, wireless access point,...) will show poor network connection and then, poor streaming quality. It's recommended 56 Mbps or higher bandwidth for full feature.
- Working close to other Wireless/Bluetooth network, can appear some trouble using Wi-Fi adapter on the Connected TV. Due to wireless link cannot be guarantee, please try to change Wi-Fi channel on Access Point for avoiding interferences. Please refer to Access Point User Manual.

Operation Manual (Continued)

Connected TV

Browse Connected TV

Basic Operation

- **Display the Connected TV screen.**  
Press **NET** on remote or select **AQUOS Net** on **INPUT SOURCE** menu. The default mode is **HOME MEDIA**.
- **Select WEB TV mode for Internet Services.**  
On **Connected TV** main screen, use **◀/▶** to select **WEB TV** mode and press **OK**.

Press **▲/▼** to select the desired service and press **OK** to start it.



- Press **END** to return to the previous page/menu (this may not function for some services).
- Press **HOME** to return to the Connected TV main screen.
- Press **END** or **OK/▶/◀/END** to reproduce online contents.
- **Select HOME MEDIA mode for Local Streaming.**  
On the Connected TV main screen, use **◀/▶** to select **HOME MEDIA** mode and press **OK**.  
-Press **▲/▼** to select the desired DLNA Media Server from available Server list and press **OK**.



- Press **▲/▼** to select the desired DLNA Media Server Content between:  
Music  
Video  
Pictures  
Playlist  
and press **OK** to select it.
- After selecting the media folder, use **▲/▼** to select the desired media file and **OK** to play it.

- **Searching Media on Local Network or Internet.**  
At any moment, press **Search** on remote.-Enter the Search keyword on the box and press **OK**.



- After few seconds, will appear the result screen. Select the media file from the list and press **OK** to play it.
- **Select Widgets.**

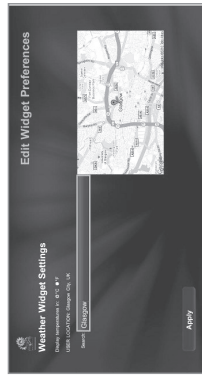
Widgets area is located on the right side of the main Connected TV screen. But, on live playback can be activated by pressing **RED** or **Widget** keys on remote.

-Press **▲/▼** to move the widget carousel and select one.

**NOTE:**

Most of them require of a previous setup (Weather) or are Login dependent (Twitter, Facebook...).

- For Widgets setup select **SETTINGS** on the main **Connected TV** screen and press **OK**.  
- Press **BLUE** on remote for **GENERAL** setup.  
- Select **Preferences** on Widgets.  
- Select **Edit** on desired Widget for introduce personal data.



- Press **YELLOW** on remote for **LOGIN** setup.  
-Select **"Create New User"**, **"Edit"** or **"Delete"** depending on case.  
If you are creating new user, after filling the user profile, remember of select **"Store User Data"**.  
-During new user setup some access to internet is required to fulfill and confirm data on service provider **WEB**.
- **Select USER (LOGIN).**  
Some **WEB TV** service (Flickr, YouTube, ...) requires authentication. To Login, on the Connected TV main screen use **◀/▶** to select **LOGIN** and press **OK**.  
-Select the **"USER NAME"** on user list and press **OK**.  
-Select **"Login"** and press **OK** to fix user.
- **Exit Connected TV.**

Press **DTV, MEDIA PLAYER** or **↩** on remote to leave Connected TV mode.

Appendix

Troubleshooting

Problem	Possible Solution
• No power.	<ul style="list-style-type: none"><li>• Check if you pressed <b>⏻</b> on the remote control unit. If the indicator on the TV lights up red, press <b>⏻</b>.</li><li>• Check if the AC cord is disconnected?</li><li>• Check if you pressed <b>⏻</b> on the TV.</li></ul>
• The TV cannot be operated.	<ul style="list-style-type: none"><li>• External influences such as lightning, static electricity, etc., may cause improper operation. In this case, operate the TV after first turning off the power, or unplugging the AC cord and re-plugging it in after one or two minutes.</li></ul>
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• Power is suddenly turned off.	<ul style="list-style-type: none"><li>• The TV's internal temperature has increased. Remove any objects blocking the vent or clean.</li><li>• Is the "Sleep Timer" set? Select "Off" from the "TIME" menu (Page 20).</li><li>• Is "No Signal Off" or "No operation Off" activated?</li></ul>
• No picture.	<ul style="list-style-type: none"><li>• Are connections to external equipment correct? (Pages 13, 14 and 15)</li><li>• Is the input signal type selected correctly after connection? (Page 10)</li><li>• Is the correct input source selected? (Page 10)</li><li>• Is the picture adjustment correct? (Pages 19)</li><li>• Is the antenna connected properly? (Page 8)</li></ul>
• No sound.	<ul style="list-style-type: none"><li>• Is the volume too low?</li><li>• Make sure that headphones are not connected.</li><li>• Check if you pressed <b>⏻</b> on the remote control unit.</li></ul>
• The TV sometimes makes a cracking sound.	<ul style="list-style-type: none"><li>• This is not a malfunction. This happens when the cabinet slightly expands and contracts according to changes in temperature. This does not affect the TV's performance.</li></ul>

Cautions regarding use in high and low temperature environments

- When the TV is used in a low temperature space (e.g. room, office), the picture may leave trails or appear slightly delayed. This is not a malfunction, and the TV will recover when the temperature returns to normal.
- Do not leave the TV in a hot or cold location. Also, do not leave the TV in a location exposed to direct sunlight or near a heater, as this may cause the cabinet to deform and the LCD panel to malfunction.  
Storage temperature: -20 °C to +60 °C.

Information on the software license for this product

Software composition

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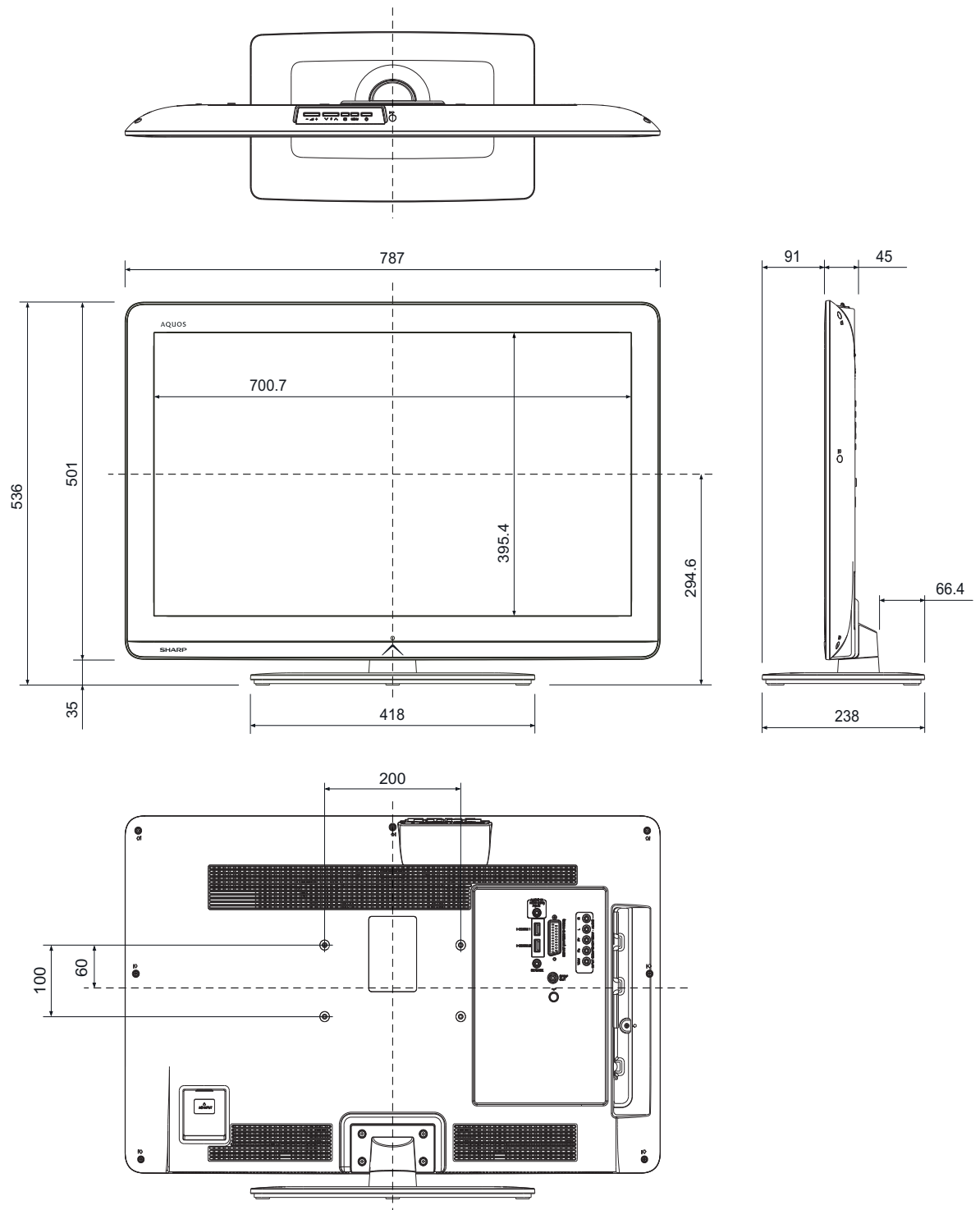
Software developed by SHARP and/or third part

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Fixing the TV on a wall

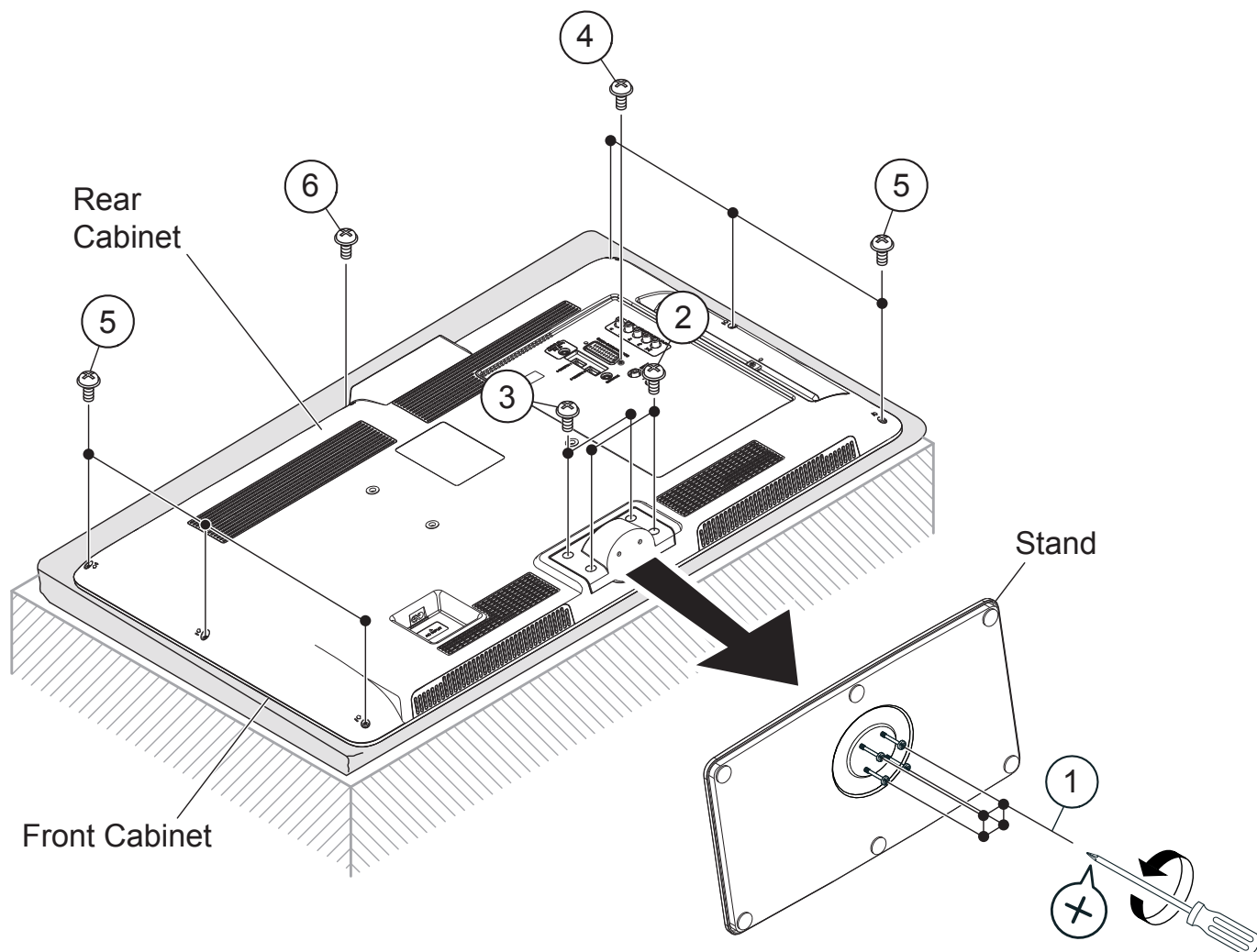
- **This TV should be fixed on a wall only with the wall fix bracket available from SHARP (Page 5). The use of other wall fix brackets may result in an unstable installation and may cause serious injuries.**
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- When you fix the TV on a wall, you should attach the supporting post.

## DIMENSIONS



## REMOVING OF MAJOR PARTS

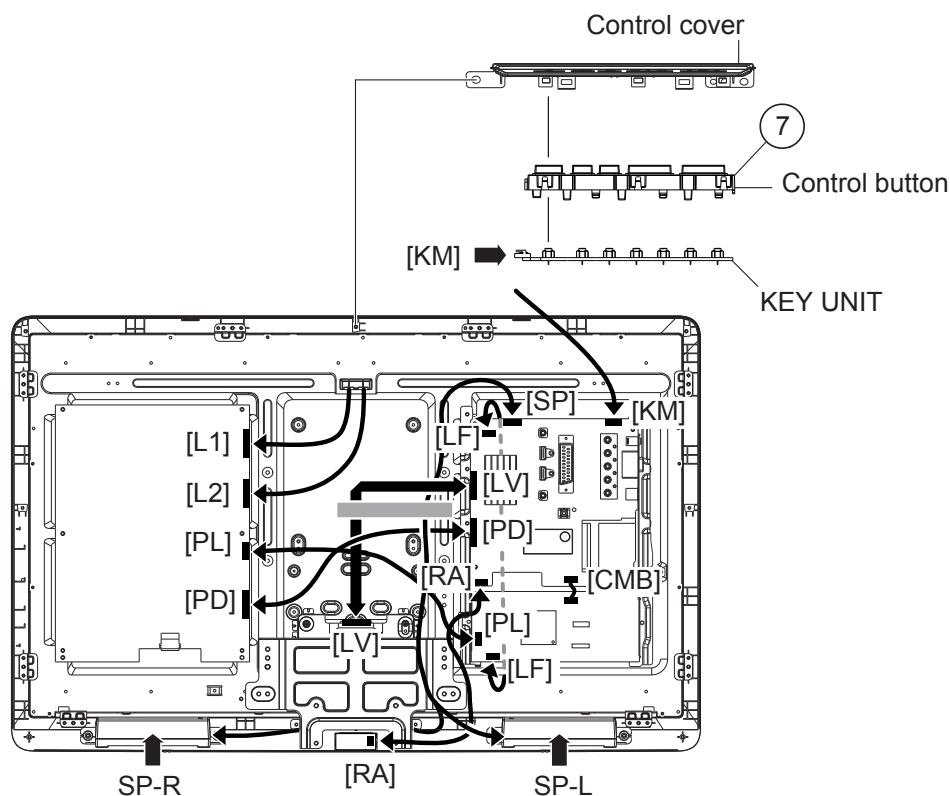
- . To slacken the 4 lock screws ① and detach the Stand.
- . Remove the 2 lock screws ②, 2 lock screws ③, 1 lock screws ④, 6 lock screws ⑤, 1 lock screw ⑥ and detach the Rear Cabinet.



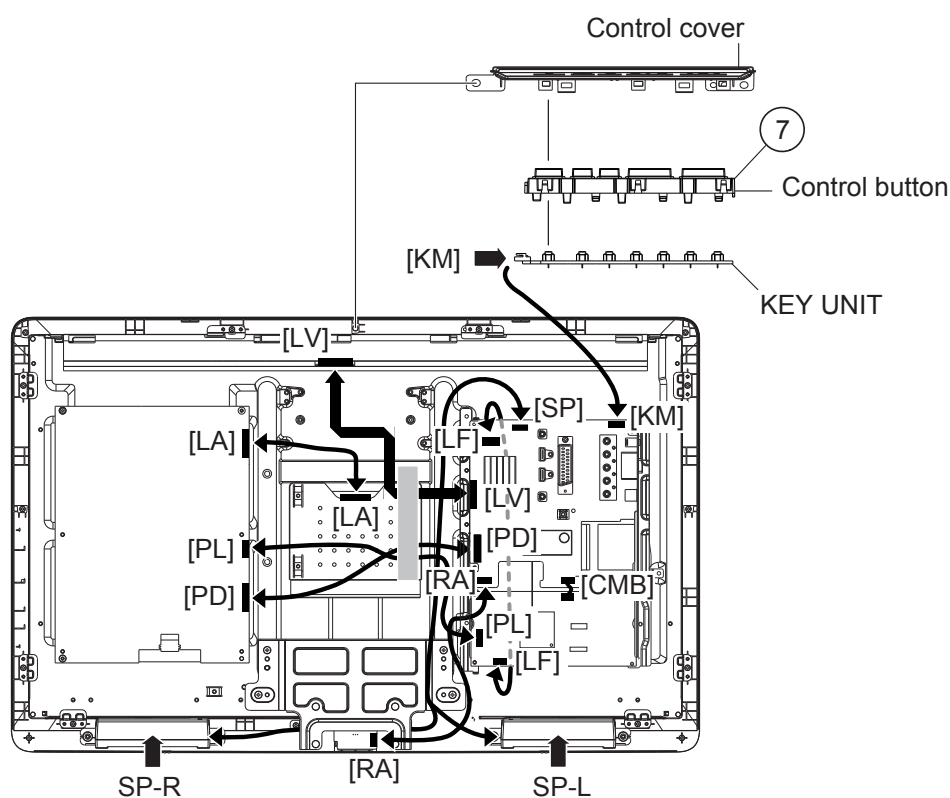
## Removing of major parts (Continued)

3. Disconnect all the connectors from all the PWBs.
4. Remove the Key Unit Ass'y ⑦.

LC32LE225E models:



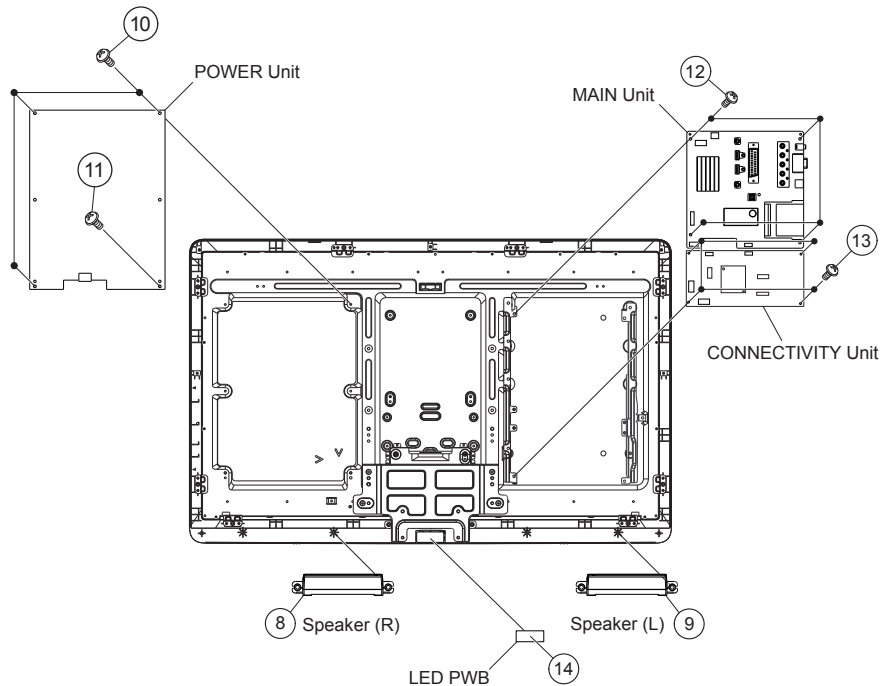
LC32LE225EB models:



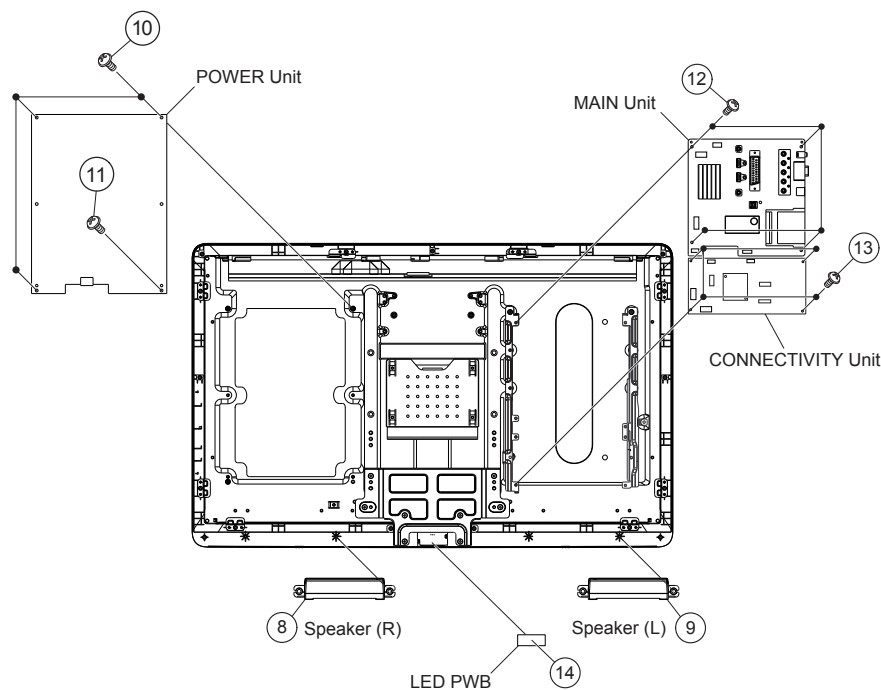
## Removing of major parts (Continued)

5. Remove the speaker (R) ⑧ , (L) ⑨ .
6. Remove the 3 lock screws ⑩ , 1 lock screw ⑪ and detach the POWER Unit.
7. Remove the 4 lock screws ⑫ , and detach the MAIN Unit.
8. Remove the 4 lock screws ⑬ , and detach the CONNECTIVITY Unit.
9. Remove the LED PWB ⑭ .

LC32LE225E models:



LC32LE225EB models:

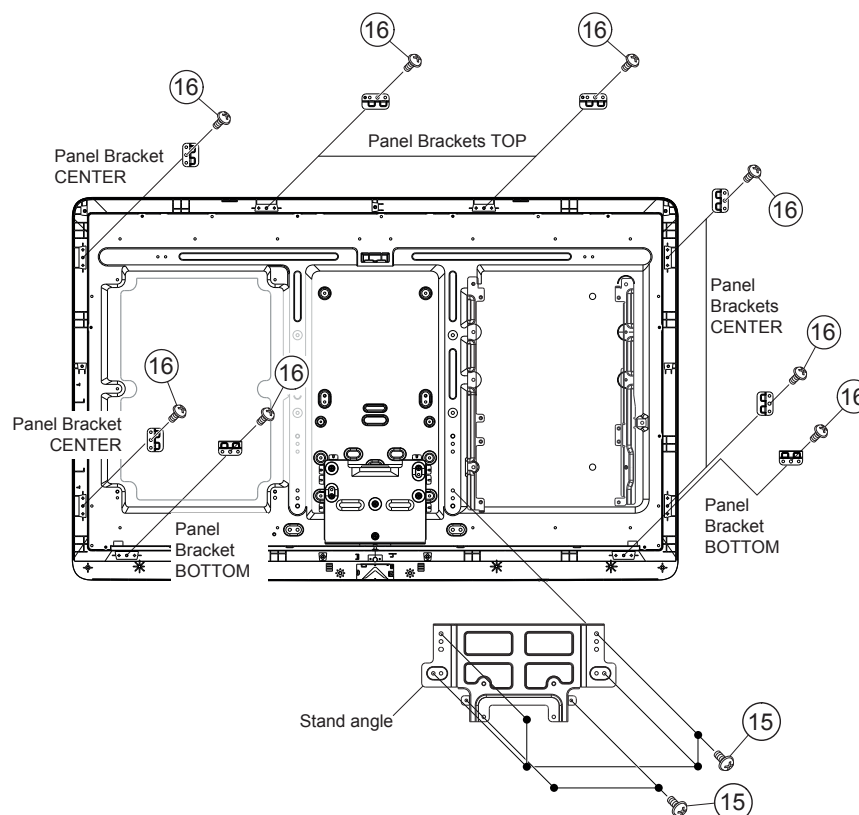




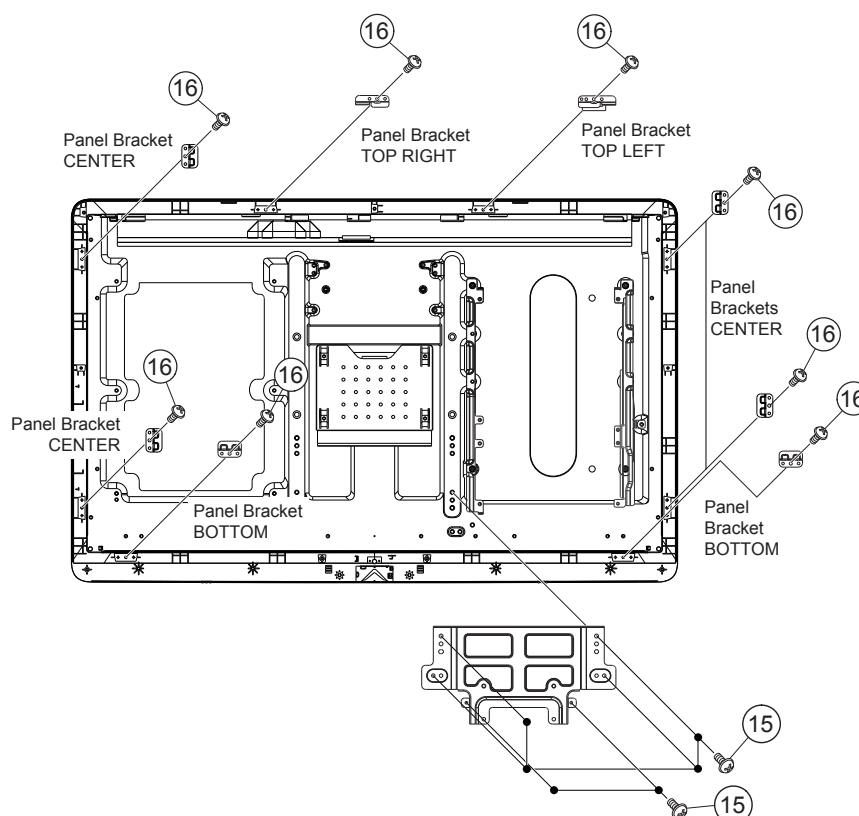
## Removing of major parts (Continued)

9. Remove the 6 lock screws ⑮ and detach the stand angle.
10. Remove the 8 lock screws ⑯ and detach the panel brackets.

LC32LE225E models:



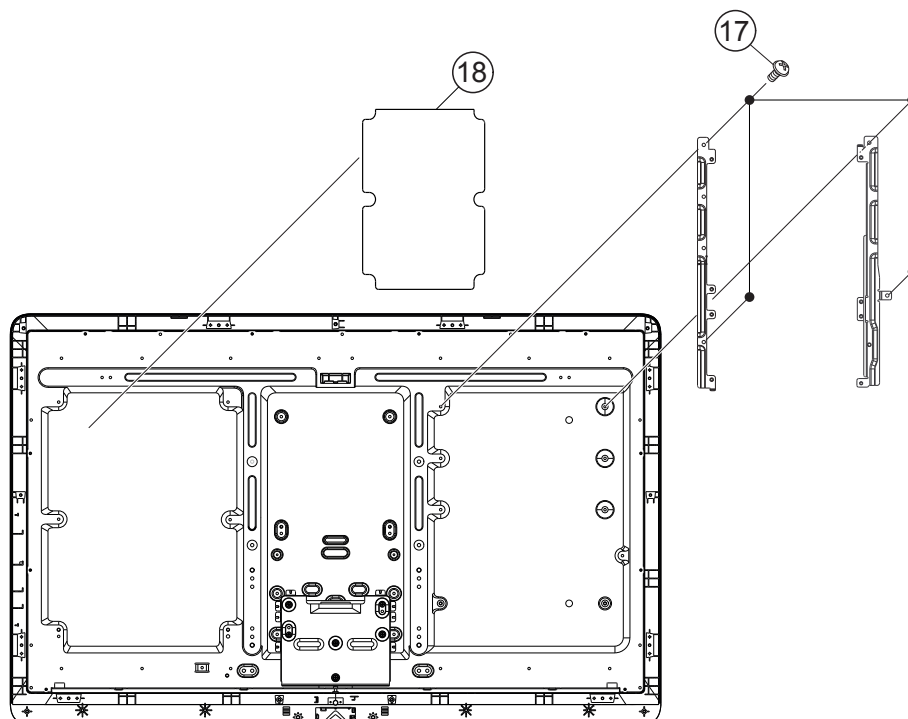
LC32LE225EB models:



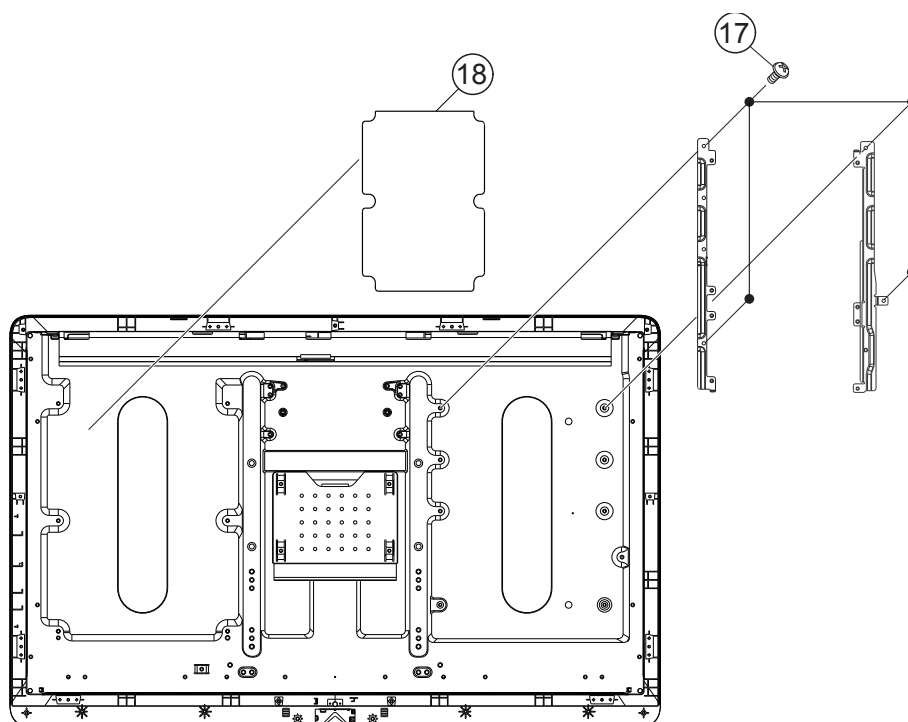
## Removing of major parts (Continued)

11. Remove the 4 lock screws ⑰ and detach the angles.
12. Remove the insulation sheet ⑱.

LC32LE225E models:



LC32LE225EB models:





## SERVICE ADJUSTMENTS

### 1. Adjustment method after PWB and/or IC replacement due to repair

The unit is set to the optimum performance at the time of shipment from the factory.

If any value should become improper or any adjustment is necessary due to the part replacement, make an adjustment according to the following procedure.

#### 1.1. Procure the following units in order to replace the main unit:

MAIN UNIT **DUNTKF639WExx**

NOTE: [Caution when replacing ICs in the main unit (IC1901, IC1902, IC1903, IC1501 and IC1006)]


Before replacing the relevant part, procure the following parts in which the data have been rewritten.

Ref.	Description	Parts code IC + data	Description new IC code for service
IC1901	HDMI EDID 1	RH-IXD236WJZZY	RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_1_EDID
IC1902	HDMI EDID 2	RH-IXD237WJZZY	RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_2_EDID
IC1903	HDMI EDID 3	RH-IXD238WJZZY	RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_3_EDID
IC1501	PC EDID	RH-IXD239WJZZY	RH-IXD080WJZZY AND DATA LC32LE2x0E_PC_EDID
IC1006	HDCP USER SETTINGS	RH-IXD261WJZZY	RH-IXC986WJZZY AND DATA LC32LE2x0E_HDCP_KEY


NOTE: For LE225 model it is not possible the replacement of IC1007. Proceed to replace the full Main Unit.

### 2. Entering and exiting the adjustment process mode. Standard method.

#### 1. By key-unit.


1. Unplug the AC power cord.
2. Press and hold "V-" and " keys, simultaneously, and then plug the AC power cord.
3. "K" appears on the screen.
4. Press and hold "V-" and "P-" keys, simultaneously.
5. "SHARP FACTORY MENU" appears (see Figure 1).
6. Unplug the AC power cord to exit of adjustments process.

#### 2. By own R/C

1. Turn on the TV set.
2. Press ", "2", "5", "8", "0" (to enter this code the time is limited to 5 sec. approx.)
3. "SHARP FACTORY MENU" appears (see Figure 1).
4. Press "OK" on lines 5 ~ 12 to go to submenu.
5. Press "MENU" to return to main menu.
6. Press "END" to exit of adjustments mode.

### 3. Remote control key operation and description of display in adjustment process mode.

#### 1. key operation

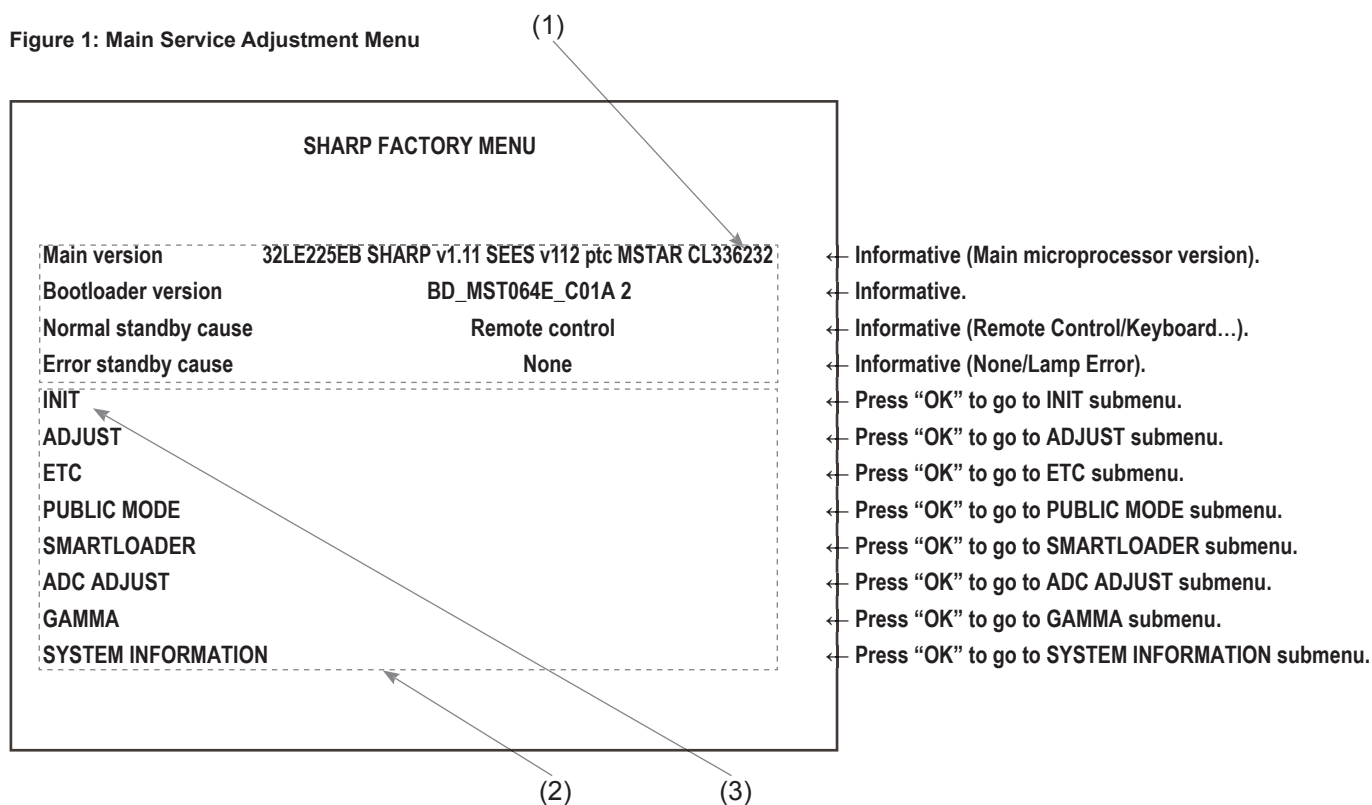
Remote control key	Keyboard unit	Function
Cursor (▼/▲)	P (✓/∧)	Moving an item (line) by one (up/down) on "Sharp Factory Menu" or submenus.
OK		Selecting a submenu on lines 5 to 12 of "Sharp Factory Menu" or executing a function.
Cursor (◀/▶)	V (+/-)	Changing a selected item setting value.
MENU	MENU	Return to "Sharp Factory Menu" from a submenu.

The required input mode should be switched previously to enter the Service Mode.

**CAUTION:** Use due care in handling the information described here lest the users should know how to enter the adjustment process mode. If the settings are tampered with in this mode, unrecoverable system damage may result.

### 4. Description of display

Figure 1: Main Service Adjustment Menu



No.	Description	Display specification
(1)	Service Information	Current Software version and others.
(2)	Item name	Submenus to be checked or adjusted (by pressing "OK" button)
(3)	Factory init and Inch setting	Are shown on INIT submenu

## 5. Adjustment process mode menu

Page	Line	Sub Page	Item	Description	Remarks (adjustment details, etc.)
01/17	[SHARP FACTORY MENU]				
	1		Main Version	32LE225EB SHARP v1.11 SEES v112 ptc MSTAR CL336232	Informative only (Main microprocessor version)
	2		Bootloader Version	BD_MST064E_C01A 2	Informative only
	3		Normal Standby Cause	Remote Control / Keyboard...	Informative only
	4		Error Standby Cause	None / Lamp Error	Informative only
	5		INIT	Factory Init Submenu	Press "OK" to enter to Factory Init Submenu
		02/17	Factory Init	EURO	Informative (EURO/RUSSIA/SWEDEN/UK/EAST EUROPE)
			Inch Setting	CMOV315H3-LE3	Panel type
			Center Acutime	0 H 0 M	Backlight ON accumulated Time
			RESET	"OK" Will be displayed	Press "◀" or "▶" to reset Center Acutime
	6		ADJUST	QMAP ADJUST Submenu	Press "OK" to enter to QMAP ADJUST Submenu
		03/17	INPUT SOURCE (1/6)	RF_PAL_BGHI	
			AFEC		Only for Engineering purpose (Please don't use)
			Comb		Only for Engineering purpose (Please don't use)
			SECAM		Only for Engineering purpose (Please don't use)
			SCinit		Only for Engineering purpose (Please don't use)
			CSC	OFF	Only for Engineering purpose (Please don't use)
			CSC_Dither	OFF	Only for Engineering purpose (Please don't use)
			YCdelay	OFF	Only for Engineering purpose (Please don't use)
			PreFilter	OFF	Only for Engineering purpose (Please don't use)
			HSD_Y	ALL PASS1X	Only for Engineering purpose (Please don't use)
			HSD_C	ALL PASS1X	Only for Engineering purpose (Please don't use)
			VSD	OFF	Only for Engineering purpose (Please don't use)
			CTI	CTI_1	Only for Engineering purpose (Please don't use)
		04/17	INPUT SOURCE (2/6)	DTV/ RF/Multimedia ...	
			MemFormat	422MF	Only for Engineering purpose (Please don't use)
			444To422	ON	Only for Engineering purpose (Please don't use)
			PreSNR	OFF	Only for Engineering purpose (Please don't use)
			DNR	NR_OFF	Only for Engineering purpose (Please don't use)
			DNR_Motion	MR_NR	Only for Engineering purpose (Please don't use)
			DNR_Y	OFF	Only for Engineering purpose (Please don't use)
			DNR_MED	OFF	Only for Engineering purpose (Please don't use)
			DNR_C	OFF	Only for Engineering purpose (Please don't use)
			PNR	OFF	Only for Engineering purpose (Please don't use)
			PNR_Y	OFF	Only for Engineering purpose (Please don't use)
			PNR_C	OFF	Only for Engineering purpose (Please don't use)
			PostCCS	OFF	Only for Engineering purpose (Please don't use)
		05/17	INPUT SOURCE (3/6)	DTV/ RF/Multimedia ...	
			PostCCS_Smooth	PCS_6	Only for Engineering purpose (Please don't use)
			420CUP	OFF	Only for Engineering purpose (Please don't use)
			MADi	25_4R	Only for Engineering purpose (Please don't use)
			MADi_Motion	MOT_PMODE	Only for Engineering purpose (Please don't use)
			MADi_AD3x3	OFF	Only for Engineering purpose (Please don't use)
			MADi_MORPHO	OFF	Only for Engineering purpose (Please don't use)
			MADi_DFK	OFF	Only for Engineering purpose (Please don't use)

Page	Line	Sub Page	Item	Description	Remarks (adjustment details, etc.)
1/17	[SHARP FACTORY MENU]				
	6		ADJUST (continued)	QMAP ADJUST Submenu	Press "OK" to enter to QMAP ADJUST Submenu
		05/17	INPUT SOURCE (3/6)	DTV/ RF/Multimedia ...	
			MADi_SST	OFF	Only for Engineering purpose (Please don't use)
			MADi_Force	OFF	Only for Engineering purpose (Please don't use)
			EODi	OFF	Only for Engineering purpose (Please don't use)
			Film	SD_2	Only for Engineering purpose (Please don't use)
			Film32	OFF	Only for Engineering purpose (Please don't use)
		06/17	INPUT SOURCE (4/6)	DTV/ RF/Multimedia ...	
			Film22	OFF	Only for Engineering purpose (Please don't use)
			DIPF	OFF	Only for Engineering purpose (Please don't use)
			VCLPF	ON	Only for Engineering purpose (Please don't use)
			Spike_NR	S2	Only for Engineering purpose (Please don't use)
			SPF	ON	Only for Engineering purpose (Please don't use)
			SPF_DBK	OFF	Only for Engineering purpose (Please don't use)
			SPF_SNR	E2S1	Only for Engineering purpose (Please don't use)
			SPF_DBK_SNR_MR	ON	Only for Engineering purpose (Please don't use)
			SPF_MR_LPF	LPF3x3	Only for Engineering purpose (Please don't use)
			SPF_NMR	S2	Only for Engineering purpose (Please don't use)
			SPF_NMR_MR	ON	Only for Engineering purpose (Please don't use)
			DMS	S2	Only for Engineering purpose (Please don't use)
		07/17	INPUT SOURCE (5/6)	DTV/ RF/Multimedia ...	
			VSP_Y	SRAM_1_4Tap	Only for Engineering purpose (Please don't use)
			VSP_C	ROM_2121	Only for Engineering purpose (Please don't use)
			VSP_CoRing	OFF	Only for Engineering purpose (Please don't use)
			VSP_DeRing	OFF	Only for Engineering purpose (Please don't use)
			VSP_Dither	OFF	Only for Engineering purpose (Please don't use)
			VSP_PreVBound	OFF	Only for Engineering purpose (Please don't use)
			HSP_Y	SRAM_2_6Tap	Only for Engineering purpose (Please don't use)
			HSP_C	ROM_121	Only for Engineering purpose (Please don't use)
			HSP_CoRing	Y_Coring_1	Only for Engineering purpose (Please don't use)
			HSP_DeRing	OFF	Only for Engineering purpose (Please don't use)
			HSP_Dither	OFF	Only for Engineering purpose (Please don't use)
			HnonLinear	H_1920_0	Only for Engineering purpose (Please don't use)
		08/17	INPUT SOURCE (6/6)	DTV/ RF/Multimedia ...	
			SRAM1	InvSinc4Tc4p4Fc85 Fstop134Apass01Astop50	Only for Engineering purpose (Please don't use)
			SRAM2	InvSinc6Tc4p4Fc94 Fstop134Apass01Astop60	Only for Engineering purpose (Please don't use)
			422To444	ON	Only for Engineering purpose (Please don't use)
			Peaking	1080p	Only for Engineering purpose (Please don't use)
			SwDriver	ALL	Only for Engineering purpose (Please don't use)
			VIP_CSC	OFF	Only for Engineering purpose (Please don't use)
			VIP_CSC_Dither	OFF	Only for Engineering purpose (Please don't use)
			Color	Multimedia_photo_HD	Only for Engineering purpose (Please don't use)
			3x3	OFF	Only for Engineering purpose (Please don't use)
			Display	ALL	Only for Engineering purpose (Please don't use)
			Post_CON_BRI	OFF	Only for Engineering purpose (Please don't use)

Page	Line	Sub Page	Item	Description	Remarks (adjustment details, etc.)
01/17	[SHARP FACTORY MENU]				
	7		ETC	EEP, Autoinstallation, Option, Country, L Error...	Press "OK" to enter to ETC Submenu
	09/17		EEP Clear		Press "▶" to Clear NVM data
			EEP Clear B		Press "▶" to Clear NVM data (except adjustment area).
			Standby cause reset	"OK" will be displayed	Press "▶" to Reset of STANDBY CAUSE.
			Autoinstallation SW	Off	On: Pending to execute on next power on. Off: Not required.
			Pattern	0	Selection of internal pattern from 0 up to 6...
			L Error Reset	0	Press "▶" to LAMPERRRESET. Initialization of L_ERR.
			L Error Check	On	L_ERR detection. ON: activated. OFF: deactivated.
			I2C OFF	Off	I2C BUS status. On: free BUS. Off: Normal.
			Sharp protocol	On	Remote Control Protocol. On: SHARP Off: MSTAR.
	8		PUBLIC MODE (1/2)	PUBLIC MODE Submenu	Press "OK" to enter to PUBLIC MODE Submenu
	10/17		Power On fixed	Variable	Press "◀" or "▶" to change Variable/Fixed.
			Maximum volume	60	Press "◀" or "▶" to change 0/60.
			Volume fixed	Variable	Press "◀" or "▶" to change Variable/Fixed.
			Volume fixed Level	20	Press "◀" or "▶" to change 0/60.
			RC button	Respond	Press "◀" or "▶" to change Respond/No respond.
			Panel button	Respond	Press "◀" or "▶" to change Respond/No respond.
			Menu button	Respond	Press "◀" or "▶" to change Respond/No respond.
			On screen display	On	Press "◀" or "▶" to change On/Off.
			Input mode start	Normal	Press "◀" or "▶" to change Normal/TV/SCART/...
			Input mode fixed	Variable	Press "◀" or "▶" to change Variable/Fixed.
			Input TV mode program number	Normal	Press "◀" or "▶" to change Normal → 1 → 2 ...999 → Normal).
			RC path through	Off	Press "◀" or "▶" to change On/Off (required external module)
			PUBLIC MODE (2/2)	PUBLIC MODE Submenu	
	11/17		Hotel mode	Off	Press "◀" or "▶" to change On/Off.
			Reset	"OK" will be displayed	Press "◀" or "▶" to return to factory settings.
			Execute	"OK" will be displayed	Press "◀" or "▶" to confirm.
	9		SMART LOADER	SMART LOADER Submenu	Press "OK" to enter to SMART LOADER Submenu
	12/17		Save settings to USB	("OK" or "NO USB drive available, please check and/or insert USB dri..." will be displayed).	Press "◀" or "▶" to Save. ("OK" or "NO USB drive available, please check and/or insert USB dri..." will be displayed).
			Load settings from USB	("OK, reboot TV set" or "NO USB drive available, please check and/or insert USB dri..." will be displayed).	Press "◀" or "▶" to Load.
	10		ADC ADJUST	ADC ADJUST Submenu	Press "OK" to enter to ADC ADJUST Submenu
	13/17		MODE	YPbPr(SD)	Press "◀" or "▶" to change RGB/YPbPr(SD)/YPbPr(HD).
			ADJUST	External signal	Press "◀" or "▶" to change Internal signal/External signal. External: factory. Internal: service
			R-GAIN	80	Press "◀" or "▶" for manual adjustment.
			G-GAIN	70	Press "◀" or "▶" for manual adjustment.

Page	Line	Sub Page	Item	Description	Remarks (adjustment details, etc.)
01/17	[SHARP FACTORY MENU]				
			ADC ADJUST (continued)	ADC ADJUST Submenu	Press "OK" to enter to ADC ADJUST Submenu
	10	13/17	B-GAIN	80	Press "◀" or "▶" for manual adjustment.
			R-OFFSET	128	Press "◀" or "▶" for manual adjustment.
			G-OFFSET	128	Press "◀" or "▶" for manual adjustment.
			B-OFFSET	128	Press "◀" or "▶" for manual adjustment.
			AUTO ADC	"SUCCESS" or "Fail will be displayed	Press "◀" or "▶" for automatic adjustment in each mode.
	11		GAMMA (1/3)	GAMMA Submenu	Press "OK" to enter to GAMMA Submenu
		14/17	MGAMMA IN1	40	W/B adjustment, gradation 1 input setting.
			MGAMMA IN2	80	W/B adjustment, gradation 2 input setting.
			MGAMMA IN3	120	W/B adjustment, gradation 3 input setting.
			MGAMMA IN4	160	W/B adjustment, gradation 4 input setting.
			MGAMMA IN5	200	W/B adjustment, gradation 5 input setting.
			MGAMMA IN6	240	W/B adjustment, gradation 6 input setting.
			MGAMMA WRITE	"SUCCESS" will be displayed	Press "◀" or "▶" for EEP writing of adjustment values.
			MGAMMA RESET	"SUCCESS" will be displayed	Press "◀" or "▶" for Initialization of adjustment values.
			GAMMA (2/3)	GAMMA Submenu	
		15/17	MGAMMA R1	151	W/B adjustment, gradation 1R adjustment value.
			MGAMMA G1	155	W/B adjustment, gradation 1G adjustment value.
			MGAMMA B1	146	W/B adjustment, gradation 1B adjustment value.
			MGAMMA R2	307	W/B adjustment, gradation 2R adjustment value.
			MGAMMA G2	318	W/B adjustment, gradation 2G adjustment value.
			MGAMMA B2	308	W/B adjustment, gradation 2B adjustment value.
			MGAMMA R3	458	W/B adjustment, gradation 3R adjustment value.
			MGAMMA G3	480	W/B adjustment, gradation 3G adjustment value.
			MGAMMA B3	471	W/B adjustment, gradation 3R adjustment value.
			MGAMMA WRITE	"SUCCESS" will be displayed	Press "◀" or "▶" for EEP writing of adjustment values.
			GAMMA (3/3)	W/B ADJUST Submenu	
		16/17	MGAMMA R4	619	W/B adjustment, gradation 4R adjustment value.
			MGAMMA G4	640	W/B adjustment, gradation 4G adjustment value.
			MGAMMA B4	631	W/B adjustment, gradation 4B adjustment value.
			MGAMMA R5	770	W/B adjustment, gradation 5R adjustment value.
			MGAMMA G5	800	W/B adjustment, gradation 5G adjustment value.
			MGAMMA B5	789	W/B adjustment, gradation 5B adjustment value.
			MGAMMA R6	918	W/B adjustment, gradation 6R adjustment value.
			MGAMMA G6	961	W/B adjustment, gradation 6G adjustment value.
			MGAMMA B6	946	W/B adjustment, gradation 6R adjustment value.
			MGAMMA WRITE	"SUCCESS" will be displayed	Press "◀" or "▶" for EEP writing of adjustment values.
	12		SYSTEM INFORMATION	SYSTEM INFORMATION Submenu	Press "OK" to enter to SYSTEM INFORMATION Submenu (Only for Engineering purpose, don't use)
		17/17	NOISE LEVEL	8	Informative (changing).
			GLOBAL MOTION	127	Informative (changing).
			BIT RATE	0	Informative.
			Scan name search	2	Changeable between 0 and 255.
			VPS code	FFFF	Informative.
			830/1 code	FFFF	Informative.
			830/2 code	FFFF	Informative.
			Top TXT enabled	1	Press "◀" or "▶" to change 0/1.
			CEC	off	Press "◀" or "▶" to change off/on.

## 6. Video Signal Adjustment Procedure

### 6.1. RGB SCART ADC

1. Enter in Service mode.
2. Press "▼" until selecting "ADC ADJUST" option.
3. Press "OK".
4. "ADC ADJUST" menu appears.
5. Press "▼" until selecting "ADJUST" option.
6. Press "▶" until selecting "Internal Signal".
7. Press "▲" until selecting "MODE" option.
8. Press "▶" until selecting "RGB".
9. Press "▼" until selecting "AUTO ADC" option.
10. Press "▶", the adjustment starts.
11. "SUCCESS" appears when the adjustments finish.
12. Exit of Service mode.

### 6.2. COMPONENTS ADC

1. Enter in Service mode.
2. Press "▼" until selecting "ADC ADJUST" option.
3. Press "OK".
4. "ADC ADJUST" menu appears.
5. Press "▼" until selecting "ADJUST" option.
6. Press "▶" until selecting "Internal Signal".
7. Press "▲" until selecting "MODE" option.
8. Press "▶" until selecting "YPbPr(SD)" or "YPbPr(HD)".
9. Press "▼" until selecting "AUTO ADC" option.
10. Press "▶", the adjustment starts.
11. "SUCCESS" appears when the adjustments finish.

**Note:** both SD and HD are adjusted.

12. Exit of Service mode.

### 6.3. PC IN RGB ADC

1. Enter in Service mode.
2. Press "▼" until selecting "ADC ADJUST" option.
3. Press "OK".
4. "ADC ADJUST" menu appears.
5. Press "▼" until selecting "ADJUST" option.
6. Press "▶" until selecting "Internal Signal".
7. Press "▲" until selecting "MODE" option.
8. Press "▶" until selecting "PC-RGB".
9. Press "▼" until selecting "AUTO ADC" option.
10. Press "▶", the adjustment starts.
11. "SUCCESS" appears when the adjustments finish.
12. Exit of Service mode.



## 7. White Balance Adjustment

Condition: AV MODE= **Dynamic** (backlight at max.).

- Adjustments reference device: **Minolta CA-210**

- Adjustments target: **x=0.272, y=0.277**

High: adjustments spec  $\pm 0.001$ , inspection spec:  $\pm 0.002$

Low: adjustments spec  $\pm 0.002$ , inspection spec:  $\pm 0.004$

1. Press "▼" until selecting "GAMMA" option.
2. Press "OK".
3. "GAMMA" menu appears.
4. Press "▼" until selecting "MGAMMA RESET".
5. Press "►", to restore default values.
6. "MGAMMA RESET SUCCESS" appears.
7. Press "P+" to increase one page.
8. Press "1", appears "Internal Adjustments Pattern 1".
9. Hold the default value for "MGAMMA G1".  
(Note: next, try to get the (x, y) adjustments target, changing "MGAMMA R1" and "MGAMMA B1" as follow).
10. Press "▼" until selecting "MGAMMA R1".
11. Press "◀ ▶" until you obtain the desired value.
12. Press "MENU" to return to previous menu.
13. Press "▼" until selecting "MGAMMA B1".
14. Press "◀ ▶" until you obtain the desired value.
15. Press "MENU" to return to previous menu.

(Note: In case of not being possible to achieve the desired (x, y) target, try to get it by changing also the "MGAMMA G1")

16. Press "2", appears "Internal Adjustments Pattern 2".
17. Repeat from step 9 to 15 for the "MGAMMA R2" and "MGAMMA B2".
18. Press "3", appears "Internal Adjustments Pattern 3".
19. Repeat from step 9 to 15 for the "MGAMMA R3" and "MGAMMA B3".
20. Press "4", appears "Internal Adjustments Pattern 4".
21. Repeat from step 9 to 15 for the "MGAMMA R4" and "MGAMMA B4".
22. Press "5", appears "Internal Adjustments Pattern 5".
23. Repeat from step 9 to 15 for the "MGAMMA R5" and "MGAMMA B5".
24. Press "6", appears "Internal Adjustments Pattern 6".
25. Repeat from step 9 to 15 for the "MGAMMA R6" and "MGAMMA B6".
26. Press "▼" until selecting "MGAMMA WRITE".
27. Press "►", to save the new values.
28. "MGAMMA WRITE SUCCESS" appears.

### NOTE:

For activating the W/B flag, only is necessary to send the order MGAMMA WRITE. After this action, the "W" W/B flag will change to "1".



## 8. Initialization to factory setting

Caution: When the factory settings have been made, all user setting data, including the channel settings, are initialized. (The adjustments done in the adjustment process mode are not initialized.) Keep this in mind when initializing these settings.

1. Enter in Service mode.
2. Press “▼” or “▲” key until selecting INIT.
3. Press OK key.
4. INIT menu appears and “Factory init” option is selected.
5. Press “◀” or “▶” until selecting the option desired (EURO/RUSSIA/SWEDEN/UK/EAST EUROPE).
6. Press OK key and initialization starts.
7. OK, EURO message appears for EURO option when the setting is complete.  
OK, RUSSIA message appears for RUSSIA option when the setting is complete.  
OK, SWEDEN message appears for SWEDEN option when the setting is complete.  
OK, UK message appears for UK option when the setting is complete.  
OK, EAST EUROPE message appears for EAST EUROPE option when the setting is complete.

Note: Never turn the power off during initialization.

To exit the adjustment process mode, unplug the AC power cord from the outlet to forcibly turn off the power.

The following settings will be back to their factory ones.

- User settings
- Channel data (e.g. broadcast frequencies)
- Maker option setting
- Password data

## 9. Lamp error detection

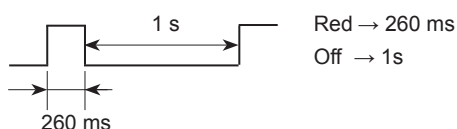
### 1. Function description

This LCD colour television has a function (lamp error detection) to be turned OFF the TV set automatically for safety criteria when the lamp or lamp circuit is abnormal.

If the lamp or lamp circuit is abnormal, or some other errors happen, and the lamp error detection is executed, the following occurs:

- a. The TV set is turned OFF automatically 20 seconds after it is turned ON by the user.  
(The power LED on the front side of TV turns from green to red)
- b. If the situation "a." happens 5 times sequentially, it becomes impossible to turn on the power.  
(The power LED turns from green to red and keeps blinking in red).

LED Flashing timing



### 2. Countermeasures

- a. Checking with [L Error Check Off]. Repair the problem that produces the LAMP ERROR. The TV remains with power LED blinking until K mode is forced by local keyboard, in order to disable the LAMP ERROR detection. To disable the LAMP ERROR feature is necessary enter in K mode by pressing "VOL DOWN" and "↩" keys at same time when the AC cord is plugged in.
- b. Resetting the LAMP ERROR counter. After the lamp and lamp circuit are found out of trouble, the LAMP ERROR counter should be reset. If a LAMP ERROR is detected five consecutive times, the power cannot be turned on.

**Method 1:** Using the cursor (UP/DOWN) key, move to the cursor to [L Error Reset] on Line 6 of ETC Menu Fig 4. With the cursor (LEFT/RIGHT) keys reset the value to "0".

**Method 2:** In the case the TV is not blocked (less than 5 consecutive errors), switch on the Set. After 30 minutes working, the LAMP ERROR counter will be reset automatically.

## 10. Public Mode (Hotel mode)

### 1. How to Enter in the Public Mode (Hotel Mode).

There are three following ways to display the Public Mode setting screen.

#### **Method 1:**

Turn on the power and enter in the Service mode as usual and select line 8 [PUBLIC MODE].

#### **Method 2:**

Unplug the AC power cord.

While pressing "VOL+" and "→" keys at the same time, plug the AC power cord.

Then, when you are asked for the password, enter "0027".

After this sequence the TV will turn on showing the Public Mode setting screen as it is shown in "Subpage 10/17" of Adjusting Menu. In another case, the screen is erased, and it operates in the ordinary mode.

#### **Method 3:**

By special R/C code: RC table LCD, SYS CORD: 0x78, RC DATA: (HEX) 0xC7, (DEC) 199.

Then, when you are asked for the password, enter "0027".

After this sequence the TV will turn on showing the Public Mode setting screen as it is shown in "Subpage 10/17" of Adjusting Menu.

Is possible to select each item of function by pressing cursor UP/DOWN keys on the remote control or CH (UP/DOWN) keys on the LCD TV.

The setting position of each item of functions is made by pressing cursor RIGHT/LEFT keys on the remote control or VOL (+) / (-) keys on the LCD TV.

Set to ON the HOTEL MODE function to active it.

Select EXECUTE position after you set all function, and press cursor RIGHT/LEFT keys on the remote control or VOL (+) / (-) keys on the LCD TV for confirmation.

Unplug and plug the AC power cord to take effect all the changes.

### 2. Public Mode Settings.

#### 1. POWER ON FIXED [VARIABLE ↔ FIXED]

When it is set to "FIXED" the TV is impossible to be switch off by Main Switch or Remote Control.

#### 2. MAXIMUM VOLUME [0 ↔ 60]

Is possible to set the maximum volume at limited level.

#### 3. VOLUME FIXED [VARIABLE ↔ FIXED]

Is possible to fix the sound volume at limited level.

When "FIXED" is selected the sound volume before limited is fixed.

#### 4. VOLUME FIXED LEVEL [0 ↔ 60]

If "FIXED" has been selected, is possible to set a fixed volume at the level that is chosen.

#### 5. RC BUTTON [RESPOND ↔ NO RESPOND]

If "NO RESPOND" is selected, the remote control keys are inoperative.

#### 6. PANEL BUTTON [RESPOND ↔ NO RESPOND]

If "NO RESPOND" has been selected, the set's keys remain deactivated (Except POWER key).

#### 7. MENU BUTTON [RESPOND ↔ NO RESPOND]

If "NO RESPOND" has been selected, "MENU" key, of remote control, is inoperative.

## 10. Public Mode (Hotel mode) (continued)

8. ON SCREEN DISPLAY [On ↔ Off]  
If "NO" has been selected, the On Screen Display does not appear.
9. INPUT MODE START [NORMAL → TV → SCART → COMPONENTS → HDMI1 → HDMI2 → HDMI3 → AV → MEDIA PLAYER]  
When any other item than "NORMAL" has been selected, the sets will start in a selected input mode at the next power-on.
10. INPUT MODE FIXED [VARIABLE → FIXED]  
"FIXED" has been selected, any channels and input modes other than those selected at the start mode cannot be picked up.
11. INPUT TV MODE PROGRAM NUMBER [NORMAL → 1-999 → NORMAL]  
When any other item than "NORMAL", i.e. number, has been selected, and "INPUT MODE START" option is set to "TV", the sets will start in the selected service / program number at the next power-on.
12. RC PATH THROUGH [ON ↔ OFF] T.B.D.
13. HOTEL MODE [ON ↔ OFF]  
If ON has been selected the HOTEL MODE is activated.
14. RESET  
Cancel all Public Mode settings. (It returns to the factory settings)
15. EXECUTE  
Select this item, and press cursor RIGHT / LEFT keys on the remote control or VOL (+) / (-) keys on the LCD TV for confirmation the functions settings.

## 11. SMART LOADER

### Description.

The Smartloader is a function implemented in the service software of SEES designed LE200 series intended to easily replicate the user settings of one TV into another. These settings include (but not restricted to): picture and audio, tuning set-up, language and country selection, PIN, child locked programs... Factory adjustments are not copied as they are different for every TV.

The Smartloader makes possible the user data to be stored in a memory device connected to the USB terminal of the TV that is used as reference and later load those data into other TVs by using their respective USB terminal.

### How it works.

In reference TV:

1. Insert a memory device in the USB slot.
2. Enter in service mode, select Factory Menu and SMARTLOADER option.
3. Select "Save settings to USB" and press the RIGHT cursor in the remote control.
4. Wait until "OK" is displayed, the file has been successfully created in the root directory of the memory device.  
In case of error, an explanation message is shown.

In TV to be cloned:

1. Insert a memory device with a file in it obtained following the above procedure.
2. Enter in service mode, select Factory Menu and SMARTLOADER option.
3. Select "Load settings from USB" and press the RIGHT button in the remote control.
4. After some seconds, "OK, reboot TV set" is displayed. In case of error, an explanation message is shown.
5. As indicated, reboot the TV to load the new settings.

Very important: All the TVs must have the same software version and hardware.

## SOFTWARE UPDATING

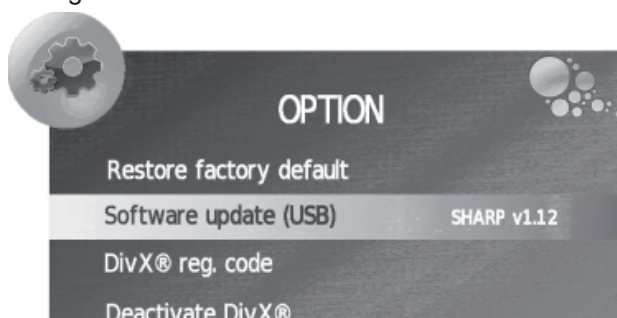
### 1. Main Unit Software Updating

#### 1.1. Introduction

- 1.1.1. In order to proceed with the Software Updating do not enter into Service Mode.
- 1.1.2. The TV should be in normal operation (ON).

#### 1.2. Procedure

- 1.2.1. Insert the USB memory into the USB MEDIA PLAYER terminal with the file name "**MERGE\_aes.bin**" on the root directory.
- 1.2.2. Press "MENU".
  - "PICTURE" menu appears on screen.
- 1.2.3. Press "►" until selecting "OPTION" menu.



- 1.2. 4. Press "▼" until selecting "Software update (USB) Sharp v\*.\*".
  - The current software version is displayed.
- 1.2. 5. Press "OK"
  - **"Are you sure? Yes - No"** message is displayed.
- 1.2. 6. Press "◀" until selecting "Yes".
- 1.2. 7. Press **"OK"**.
  - The software update process starts.



- "Software upgrading... \*\*%" message appears.
- The upgrading process is finished, the LCD-TV restarts.

NOTE: If the "MERGE\_aes.bin" on the USB memory is not the proper for this model, an ERROR message is shown on screen and the LCD TV restarts itself. No upgrade is made.

- 1.2. 8. Remove the AC cord and plug it again.
- 1.2. 9. Return to OPTION menu to check that the version has been updated successfully.

#### NOTE:

If the TV is switched off during the upgrade process, when it is switched on again, the Power LED flashes: Violet for 130 ms and blue for 1.5 s, with NO screen until it is detected in the USB memory a file "**MERGE\_aes.bin**". Then the power LED will flash: Violet for 40 ms and blue for other 40 ms, with NO screen while the new software is uploaded. Once the process is completed, the TV set will start automatically.

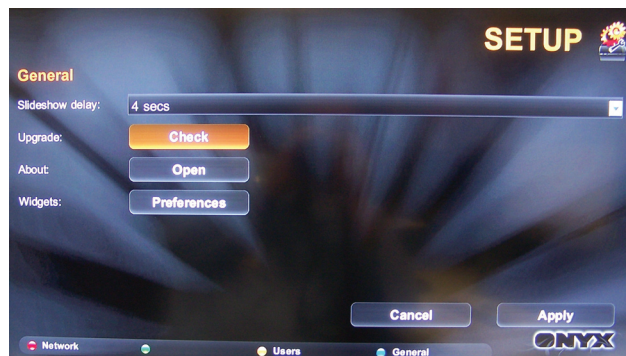
## Software Updating (Continued)

### 2. LE225 Connected TV Unit Software Updating

#### 2.1. USB method:

2.1.1. Insert a USB flash memory on the USB Wi-Fi terminal including the “upgrade.mbu” file.

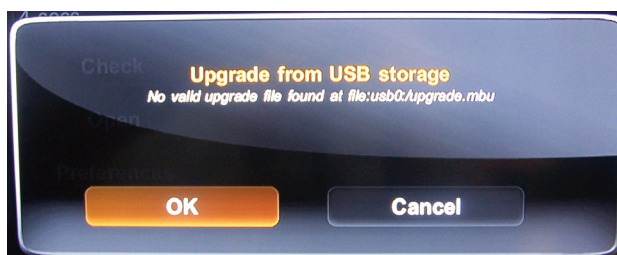
2.1.2. Enters on “Settings”, “General” (Blue on remote) and “Check”.



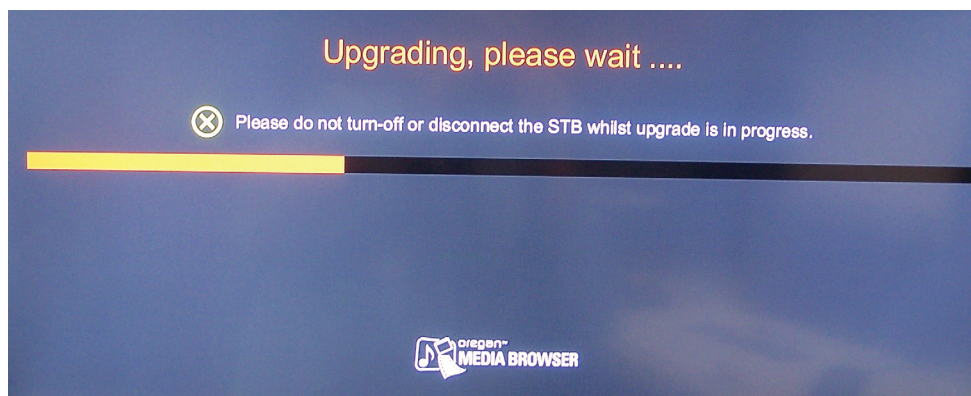
2.1.3. After few seconds the OSD indicates if the upgrade is possible or not. Please confirm or cancel the upgrade process.



2.1.4. In case of the USB was not inserted or the software was not matching with this model, the “No valid upgrade file found at file:usb0:/upgrade.mbu” message appears on the screen.



2.1.5. Please do not turn-off or disconnect the TV set whilst upgrade was in progress.





- 2.1.6. During the upgrading process, the connected TV Module will reboot automatically. The new software version can be checked on the SHARP AquosNet splash screen, but please do not turn-off until Oregon media Browser was displayed and disappears the logo "Loading"



## 2.2. INTERNET method:

The Connected TV module tries to be upgraded automatically every time the TV set is switch-on and the network is available. In case of newer software than the currently installed on the module was available, the user will be prompted "There are updates available for download, do you wish to upgrade?"

User can execute the upgrade by pressing "OK" on remote or cancel it. The rest of the process is same as the USB method explained before; please follow from item 2.1.5.

## MAJOR ICs INFORMATION

### 1. General ICs Information

#### DUNTKF639WE (Main Unit)

- **IC 201:** Digital DVBT / VIF Demodulator

Part number: MSB1222-LF

Sharp code: RH-IXD148WJZZQ

The MSB1222-LF is a DVB-T/DVB-C demodulator. It is fully compliant with the DVB-T (ETSI ET 300 744), D-Book 5.0 and Nordig unified specification. Also is compliant with DVB-C (EN 300429) and ITU-T J.83 Annex A/C. Converts IF differential signals to MPEG-2/4 transport stream format. It can be used in all 2k, 4k and 8 k modes. The device includes a high performance 11 bit A/D converter capable of accepting direct IF at 36 or 44 Mhz. A digital filter with high rejection capability is also cope with digital or analog adjacent channel. The frequency capture range is sufficient to compensate for the combined offset introduced by the tuner and broadcaster without re-programming the tuner.

- **IC 306:** Audio power IC

Part number: MSH 9000-LF

Sharp code : RH-IXC867WJQZY

10W-Ch audio power class-D operation for driving bridged-tied stereo speakers.

- **IC 309:** Headphones amplifier.

Part number: BH3547-E2

Sharp code: VHIBH3547F+-1L

The BH3547 is a 6 dB gain headphones amplifier. It built-in mute function for preventing pop noise when power supply turns On or Off.

Moreover , built-in thermal shutdown circuit to prevent short circuit .

- **IC 1007 :** 64M-Bit Serial Flash

Part number: MX25L6445EMI-10G-TR

Sharp code: RH-IXD012WJZZY

The MX25L6445EMI ia a 64 M-Bit serial flash, 3,3 V single operation. The flash memory stores the main software that is used for the main CPU (IC 1001).

- **IC 1001:** All – in – one DTV Processor

Part number: MSD3303GX

Sharp code : RH-IXC869WJQZQ

The MSD3303GX is a system one chip for flat panel integrated digital television. It integrating MPEG2 and h.264 high definition video decoders into a single device. By including a flexible AV decoder capable of decoding a plethora of high definition, USB connectivity and a powerful CPU.

- **IC 1002 & IC 1003 :** 512 Mb DDR2 SDRAM

Part number: K4T51163QI

Sharp code: RH-IXD228WJZZQ

The 512Mb DDR2 SDRAM is organized as 16Mbit x 8 I/Os x 4 banks device. This synchronous device achieves high speed double-data-rate transfer rates of up to 800Mb/sec/pin (DDR2-800) for general applications.

All of the control and address inputs are synchronized with a pair of externally supplied differential clocks (CK rising and CK falling).

This device operates with single 1,8V power supply .

- **IC 1901, IC 1902 & IC 1903 :** NVM of HDMI inputs (EDID)

Part number: K24C02C

Sharp code: RH-IXD080WJZZY

The K24C02C is a 2-wire (I2C bus type) serial EEPROM that is electrically programmable. This NVM memory is associated to the MAIN MICRO. This EEPROM chip stores the data structure used to carry configuration information for optimal use of a display (EDID data) when use a HDMI signal input.

- **IC 1006 :** NVM of settings and HDCP data

Part number: IC M24C64

Sharp code: VHIM24C64WN-1Y

- **IC 8102 :** Power supply USB port protection

Part number: AAT4614IGU-2-T1

Sharp code: RH-IXD187WJZZY



The AAT4614 SmartSwitch is a current limited P-channel MOSFET power switch designed for high side load switching applications. This switch operates with inputs ranging from 2.4V to 5.5V, making it ideal for both 3V and 5V systems. An integrated current-limiting circuit protects the input supply against large currents which may cause the supply to fall out of regulation. Reverse current blocking is provided to protect the load switch from reverse current potentials while the device is shutdown. The AAT4614 is also protected from thermal overload which is limited by power dissipation and junction temperatures. Current limit threshold is programmed with a resistor from SET to ground and has been adjusted for levels up to 1.1A.

### **RUNTKA757WJQZ (Connected TV Unit)**

- **U18:** Multi-format HD Digital Video/Audio SoC for IP DVR set-top boxes.  
Part number: BCM7405  
Sharp code: -  
<http://www.sat4all.com/forums/ubbthreads.php/ubb/download/Number/65858/filename/BCM7405.pdf>
- **U2105:** NAND-Flash 2Gbits  
Part number: HY27UF082G2B-FP  
Sharp code: -  
[http://www.hynix.co.kr/datasheet/pdf/flash/HY27UF\(08\\_16\)2G2B%20\(R0.2\).pdf](http://www.hynix.co.kr/datasheet/pdf/flash/HY27UF(08_16)2G2B%20(R0.2).pdf)
- **U12, U20, U31, U32: 512 Mb DDR2 SDRAM**  
Part number: K4T51163QI-HCF7  
Sharp code: -

### **KI-OUA002WJZZ (USB Wi-Fi Adapter Unit)**

- **U1: Single-chip all-in-one. 802.11N.**  
Part number: BCM43231KFBGH  
Sharp code: -  
[http://www.netcheif.com/Reviews/DSL-2760U/4322\\_4323-PB01-R.pdf](http://www.netcheif.com/Reviews/DSL-2760U/4322_4323-PB01-R.pdf)

### **RDENCA409WJQZ (AUO Panel) & RDENCA411WJQZ (CMI Panel) (Power Supply Units)**

- **U101, U701: PWM SWITCHING POWER SUPPLY (STANDBY CONTROLLER).**  
Part number: SSC9512S  
Sharp code: -  
The SSC9512 series products are controller ICs, incorporating a floating drive circuit for half-bridge type resonance. The product achieves high efficiency and low noise power supply systems by the ZVS and ZCS. The product is recommended for high-efficiency small and standardized power supplies because of easy circuit designs with few external components.  
[http://www.sanken-ele.co.jp/en/prod/semicon/pdf/data\\_ssc9512e.pdf](http://www.sanken-ele.co.jp/en/prod/semicon/pdf/data_ssc9512e.pdf)
- **U501: Resonant Controller for 12V & Led driver.**  
Part number: STR-A6069H  
Sharp code: -  
The STR-A6000 series products are power ICs for switching power supplies, incorporating a power MOSFET and a current-mode type PWM controller IC. The low standby power is accomplished by the automatic switching between the PWM operation in normal operation and the burst-oscillation under light load conditions. The product achieves high cost-performance power supply systems with few external components.  
[http://www.sanken-ele.co.jp/en/prod/semicon/pdf/data\\_str-a6000e.pdf](http://www.sanken-ele.co.jp/en/prod/semicon/pdf/data_str-a6000e.pdf)

- **U601: Power Factor Corrector Controller (PFC Controller).**

Part number: NCP1608D

Sharp code: -

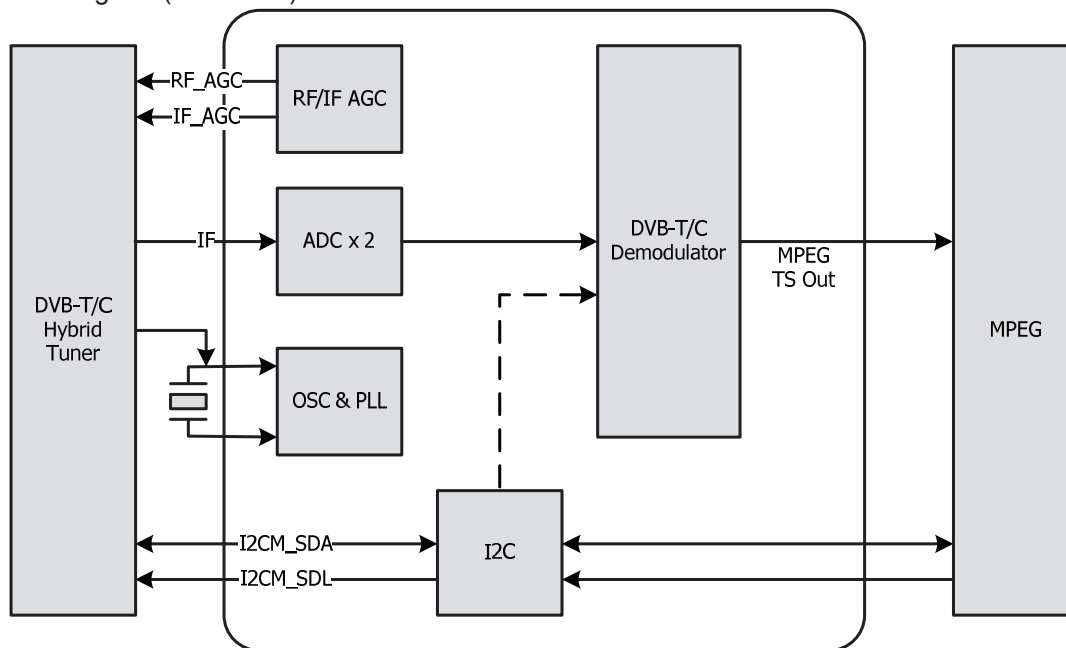
The NCP1608 is an active power factor correction (PFC) controller specifically designed for use as a pre-converter in ac-dc adapters, electronic ballasts, and other medium power off-line converters (typically up to 350 W). It uses critical conduction mode (CrM) to ensure near unity power factor across a wide range of input voltages and output power. The NCP1608 minimizes the number of external components by integrating safety features, making it an excellent choice for designing robust PFC stages.

[http://www.onsemi.com/pub\\_link/Collateral/NCP1608-D.PDF](http://www.onsemi.com/pub_link/Collateral/NCP1608-D.PDF)

## 2. Detailed ICs Information, DUNTKF639WE (Main Unit)

### 2.1. IC201

#### 2.1.1. Block Diagram (MSB1222)



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.1. IC201

#### 2.1.2. Pin Description

##### Misc. Interface

Pin Name	Pin Type	Function
EXTRSTN	Input w/ 5V-Tolerant	Chip Reset; Low Reset
IF_AGC	Output	IF AGC
RF_AGC	Output	RF AGC

##### Analog Interface

Pin Name	Pin Type	Function
SSIFO	Analog output	SSIF Output
CVBSOUT	Analog output	CVBS Output
CLKO	Analog output	Clock Output
VR27	Analog output	
SIFIP	Analog input	SIF Positive Input
SIFIM	Analog input	SIF Negative Input
VIFIM	Analog input	VIF Positive Input
VIFIP	Analog input	VIF Negative Input
VREFM	Analog input	Analog Reference Pin
VREFP	Analog input	Analog Reference Pin
ZIF_QM	Analog input	ADC ZIF Q Negative Input
ZIF_QP	Analog input	ADC ZIF Q Positive Input
ZIF_IM	Analog input	ADC ZIF I Negative Input
ZIF_IP	Analog input	ADC ZIF I Positive Input
XIN		Crystal Oscillator Input
XOUT		Crystal Oscillator Output

##### Transport Stream Interface

Pin Name	Pin Type	Function
TS_DATA[7:0]	Output	Transport Stream Data Bus Bit [7:0]
TS_VALID	Output	Transport Stream Data Valid
TS_SYNC	Output	Transport Stream Packet Start
TS_CLK	Output	Transport Stream Clock Out

##### Serial Interface

Pin Name	Pin Type	Function
I2CS_SCL	Input w/ 5V-Tolerant	Serial Clock
I2CS_SDA	I/O w/ 5V-Tolerant	Serial Data
I2CM_SCL	I/O w/ 5V-Tolerant	Serial Clock Tuner
I2CM_SDA	I/O w/ 5V-Tolerant	Serial Data Tuner

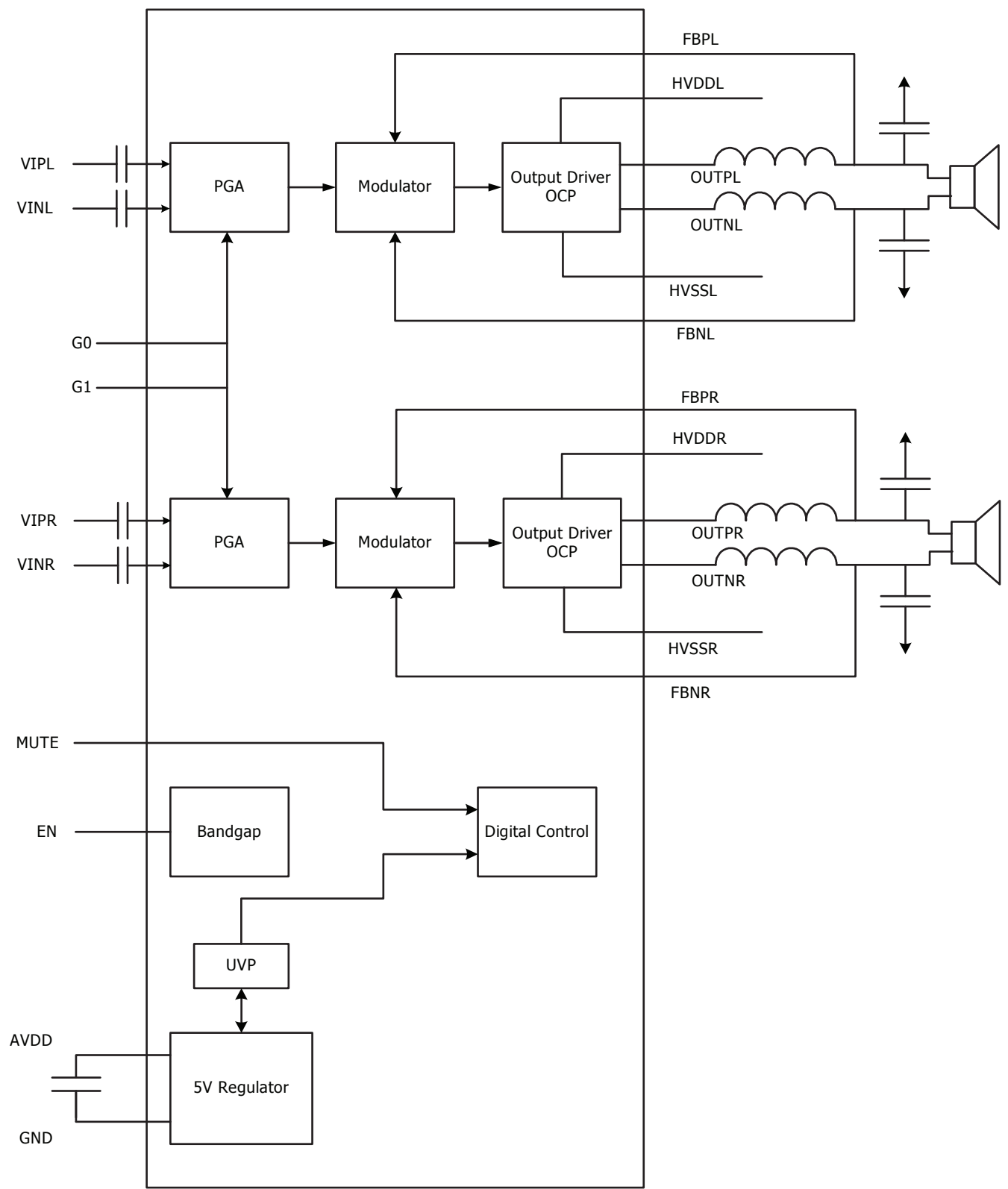
##### Power Pins

Pin Name	Pin Type	Function
AVDD_33	3.3V Power	Analog Power
VDDC	1.2V Power	Digital Core Power
GND	Ground	Ground

2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

2.2. IC 306 (MSH 9000-LF)

2.2.1. Functional Block Diagram



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.2. IC 306 (MSH 9000-LF)

#### 2.2.2. Pin Description

##### Analog Interface

Pin Name	Pin Type	Function	Pin
VIPL	Analog Input	Left channel P side audio input	3
VINL	Analog Input	Left channel N side audio input	4
VINR	Analog Input	Right channel N side audio input	7
VIPR	Analog Input	Right channel P side audio input	8
OUTNR	Analog Output	Right channel N side switching output	12, 14
OUTPR	Analog Output	Right channel P side switching output	17, 19
FBPR	Analog Output	Right channel P side feedback	22
FBNR	Analog Output	Right channel N side feedback	23
FBNL	Analog Output	Left channel N side feedback	28
FBPL	Analog Output	Left channel P side feedback	29
OUTPL	Analog Output	Left channel P side switching output	32, 34
OUTNL	Analog Output	Left channel N side switching output	37, 39

##### Digital Interface

Pin Name	Pin Type	Function	Pin
G0	Digital Input	Volume gain control bit 0	5
G1	Digital Input	Volume gain control bit 1	2
MUTE	Digital Input	Class-D is mute when EN=Hi	6
EN	Digital Input	Class-D is enable when EN=Hi	26

##### Power Pins

Pin Name	Pin Type	Function	Pin
HVSSL	Ground	Ground for left channel	1, 30, 31, 40
HVSSR	Ground	Ground for right channel	10, 11, 20, 21
HVDDR	Analog Input	Supply voltage for Right channel	13, 15, 16, 18
HVDDL	Analog Input	Supply voltage for Left channel	33, 35, 36, 38
AVDD	Analog Input	Internal reference voltage	25
GND	Ground	Ground	9, 24

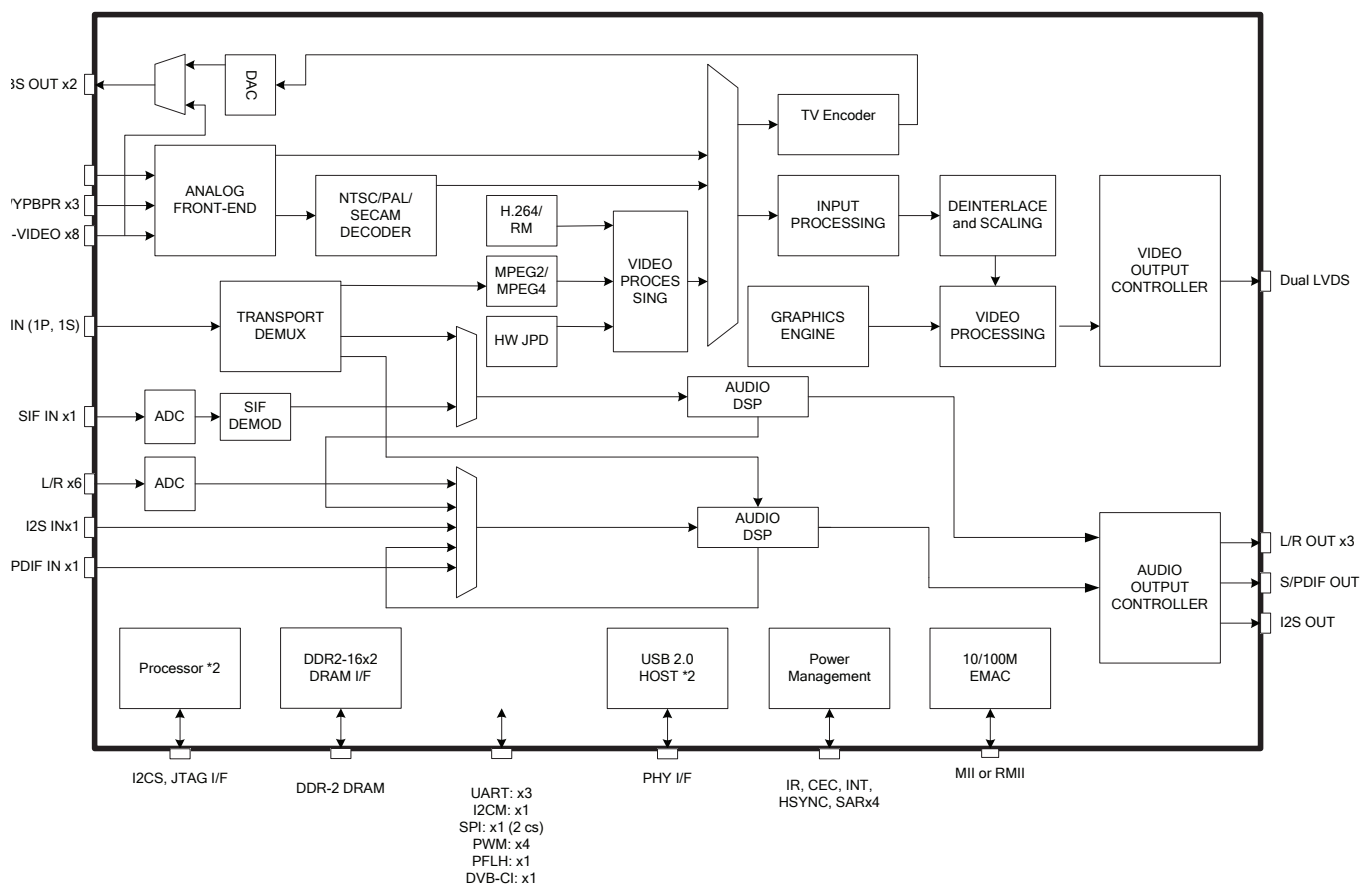
## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.1. Key Features

- Master CPU with MMU.
- DRAM controller supporting up to two 16-bit DDR2 interface.
- Power control module with ultra low power MCU available in stand by mode.
- Parallel interface for external parallel NOR flash and NAND flash support.
- H.264 decoder. Support resolution up to HDTV ( 1080i, 720p) .
- MPEG-2 decoder.
- Video analog processor.
- NTSC/PAL/SECAM Video Decoder.
- Support Teletext mode.
- Two CVBS video outputs.
- Eight configurable CVBS, Y/C, S-video inputs.
- Multistandard sound Processor.
- AC3 decoder.
- I<sup>2</sup>S digital audio output.
- Six L/R audio line-inputs.
- SIF audio output.
- Stereo L/R output for main speaker.
- Two HDMI / HDCP compliant input port.
- CEC support.
- Fully programmable scaler and display processing.
- Support up to 10 bit LVDS full HDTV panel interface.
- Support USB 2.0
- Support Common Interface for conditional access.

#### 2.3.2. Block Diagram



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description

##### Analog Interface

Pin Name	Pin Type	Function	Pin
VCLAMP		CVBS/YC Mode Clamp Voltage Bypass	K4
REFP		Internal ADC Top De-coupling Pin	H4
REFM		Internal ADC Bottom De-coupling Pin	J4
REXT	Analog Input	External Resister 390 ohm to AVDD_33	G4
HSYNC0	Schmitt Trigger Input w/ 5V-tolerant	HSYNC / Composite Sync for VGA Input from channel 0	N2
VSYNC0	Schmitt Trigger Input w/ 5V-tolerant	VSYNC for VGA Input from channel 0	N1
HSYNC1	Schmitt Trigger Input w/ 5V-tolerant	HSYNC / Composite Sync for VGA Input from channel 1	K3
VSYNC1	Schmitt Trigger Input w/ 5V-tolerant	VSYNC for VGA Input from channel 1	K2
HSYNC2	Schmitt Trigger Input w/ 5V-tolerant	HSYNC for VGA Input from channel 2	J5
BINM	Analog Input	Reference Ground for Analog Blue Input	T3
BIN0P	Analog Input	Analog Blue Input from Channel 0	R1
BIN1P	Analog Input	Analog Blue Input from Channel 1	K1
BIN2P	Analog Input	Analog Blue Input from Channel 2	U1
GINM	Analog Input	Reference Ground for Analog Green Input	R2
GIN0P	Analog Input	Analog Green Input from Channel 0	R3
GIN1P	Analog Input	Analog Green Input from Channel 1	L3
GIN2P	Analog Input	Analog Green Input from Channel 2	V2
SOGIN0	Analog Input	Sync On Green Input from Channel 0	P3
SOGIN1	Analog Input	Sync On Green Input from Channel 1	L2
SOGIN2	Analog Input	Sync On Green Input from Channel 2	V3
RINM	Analog Input	Reference Ground for Analog Red Input	P1
RIN0P	Analog Input	Analog Red Input from Channel 0	P2
RIN1P	Analog Input	Analog Red Input from Channel 0	L1
RIN2P	Analog Input	Analog Red Input from Channel 0	V1

##### Analog Video Input/Output Interface

Pin Name	Pin Type	Function	Pin
CVBS7	Analog Input	CVBS (Composite) Video Input Channel 7	M3
CVBS6	Analog Input	CVBS (Composite) Video Input Channel 6	M2
CVBS5	Analog Input	CVBS (Composite) Video Input Channel 5	N3
CVBS4	Analog Input	CVBS (Composite) Video Input Channel 4	M1
CVBS3	Analog Input	CVBS (Composite) Video Input Channel 3	T1
CVBS2	Analog Input	CVBS (Composite) Video Input Channel 2	U2
CVBS1	Analog Input	CVBS (Composite) Video Input Channel 1	U3
CVBS0	Analog Input	CVBS (Composite) Video Input Channel 0	W1
VCOM1	Analog Input	CVBS Input Reference Ground	T2
VCOM0	Analog Input	CVBS Input Reference Ground	Y3
CVBSOUT0	Analog Output	CVBS (Composite) Video Output Channel 0	Y2
CVBSOUT1	Analog Output	CVBS (Composite) Video Output Channel 1	AA2



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description (continued)

#### Analog Audio Input/Output Interface

Pin Name	Pin Type	Function	Pin
SIF0P	Analog Input	SIF Audio Input Channel 0	W3
SIF0M	Analog Input	Reference Ground for SIF Audio Input Channel 0	W2
I2S_OUT_MCK	Output	Audio Master Clock Output	A8
I2S_OUT_WS	Output	Word Select Output; 4mA driving strength	B7
I2S_OUT_BCK	Output	Audio Bit Clock Output	C7
I2S_OUT_SD	Output	Audio Serial Data Output; 4mA driving strength	D8
GPIO102/ I2S_OUT_SD2	Output	General Purpose Input/Output; 4mA driving strength / Audio Serial Data Output; 4mA driving strength	C5
GPIO103/ I2S_OUT_SD3	Output	General Purpose Input/Output; 4mA driving strength / Audio Serial Data Output; 4mA driving strength	D5
I2S_OUT_MUTE	Output	Audio Output Mute Control	E7
GPIO90/ I2S_OUT_MUTE		General Purpose Input/Output; 4mA driving strength / Audio Output Mute Control	D7
SPDIFO	Output	S/PDIF Audio Output; 4mA driving strength	E9
I2S_IN_WS/ GPIO67	I/O	Word Select Input / General Purpose Input/Output; 4mA driving strength	A7
I2S_IN_BCK/ GPIO68	I/O	Audio Bit Clock Input / General Purpose Input/Output; 4mA driving strength	B8
I2S_IN_SD	Input	Audio Serial Data Input	C8
SPDIFI	Input w/ 5V-tolerant	S/PDIF Audio Input	F11
AUL0	Analog Input	Audio Line Input Left Channel 0	Y1
AUR0	Analog Input	Audio Line Input Right Channel 0	AA3
AUL1	Analog Input	Audio Line Input Left Channel 1	AC4
AUR1	Analog Input	Audio Line Input Right Channel 1	AE1
AUL2	Analog Input	Audio Line Input Left Channel 2	AE2
AUR2	Analog Input	Audio Line Input Right Channel 2	AE3
AUL3	Analog Input	Audio Line Input Left Channel 3	AB1
AUR3	Analog Input	Audio Line Input Right Channel 3	AA1
AUL4	Analog Input	Audio Line Input Left Channel 4	AC2
AUR4	Analog Input	Audio Line Input Right Channel 4	AB2
AUL5	Analog Input	Audio Line Input Left Channel 5	AC3
AUR5	Analog Input	Audio Line Input Right Channel 5	AB3
AUCOM	Analog Input	Reference Ground for Audio Line Input	AB5
AUVRM	Analog Output	Negative Reference Voltage for Audio ADC	AD5
AUVRP	Analog Output	Positive Reference Voltage for Audio ADC	AE5
AUVAG	Analog Output	Reference Voltage for Audio Common Mode	AC5
AUOUTL2	Analog Output	Main Audio Output Left Channel 2	AD2
AUOUTR2	Analog Output	Main Audio Output Right Channel 2	AC1
AUOUTL1	Analog Output	Main Audio Output Left Channel 1	AD1
AUOUTR1	Analog Output	Main Audio Output Right Channel 1	AD3
AUOUTL0	Analog Output	Main Audio Output Left Channel 0	AD4
AUOUTR0	Analog Output	Main Audio Output Right Channel 0	AE4

## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description (continued)

##### Common Interface

Pin Name	Pin Type	Function	Pin
PCMDATA[7:0]/ CI_DATA[7:0]	I/O	PCMCIA Data[7:0] / Common Interface Data[7:0]	AE14, AD14, AC14, AB14, AA14, AB20, AC20, AD20
PCMADR[14:0]/ CI_A[14:0]	Output	PCMCIA Address[14:0] / Common Interface Address[14:0]	AB11, AE12, AD12, AC12, AB12, AA12, AE13, AD13, AC13, AB13, AA13, AE19, AD19, AC19, AB19
PCMIOR/ CI_RD	Output	PCMCIA Input/Output Read / Common Interface Read	AA8
PCMIOW/ CI_WR	Output	PCMCIA Input/Output Write / Common Interface Write	AB8
PCMOEN	Output	PCMCIA Output Enable	AC6
PCMWEN	Output	PCMCIA Write Enable	AC11
PCMREG/ CI_CLK	Output	PCMCIA Register / Common Interface Clock	AE20
PCMCEN/ CI_CS	Output	PCMCIA Card Enable / Common Interface Chip Select	AA10
PCMIRO/ CI_INT	Input	PCMCIA Interrupt Request / Common Interface Interrupt	AB7
PCMWAIT/ CI_WACK	Input	PCMCIA Extend Bus Wait Cycle / Common Interface Wait Acknowledge	AB10
CI_RST	Output	Common Interface Reset	AC18
CI_CD	Input	Common Interface Card Detect	AA20

##### TS Input Interface

Pin Name	Pin Type	Function	Pin
TS0CLK	Input w/ 5V-tolerant	TS Clock	AA5
TS0DATA[7:0]	Input w/ 5V-tolerant	TS Data in Parallel; LSB (bit 0) is for serial TS data	AB4, AA4, Y4, W4, V4, U4, T4, R4
TS0VALID	Input w/ 5V-tolerant	TS Data Valid	W5
TS0SYNC	Input w/ 5V-tolerant	TS Sync-Byte Indicator	Y5
TS1CLK	Input w/ 5V-tolerant	2 <sup>nd</sup> TS Clock	U22
TS1DATA	Input w/ 5V-tolerant	2 <sup>nd</sup> TS Data in Parallel	V22
TS1VALID	Input w/ 5V-tolerant	2 <sup>nd</sup> TS Data Valid	Y22
TS1SYNC	Input w/ 5V-tolerant	2 <sup>nd</sup> TS Sync-Byte Indicator	W22

## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description (continued)

##### DVI/HDMI Interface

Pin Name	Pin Type	Function	Pin
RXACKN	DVI/HDMI Input	Negative DVI/HDMI Input for A Link Clock Channel	F2
RXACKP	DVI/HDMI Input	Positive DVI/HDMI Input for A Link Clock Channel	F1
RXA0N	DVI/HDMI Input	Negative DVI/HDMI Input for A Link Data Channel 0	G3
RXA0P	DVI/HDMI Input	Positive DVI/HDMI Input for A Link Data Channel 0	G2
RXA1N	DVI/HDMI Input	Negative DVI/HDMI Input for A Link Data Channel 1	G1
RXA1P	DVI/HDMI Input	Positive DVI/HDMI Input for A Link Data Channel 1	H3
RXA2N	DVI/HDMI Input	Negative DVI/HDMI Input for A Link Data Channel 2	H2
RXA2P	DVI/HDMI Input	Positive DVI/HDMI Input for A Link Data Channel 2	H1
RXBCKN	DVI/HDMI Input	Negative DVI/HDMI Input for B Link Clock Channel	B1
RXBCKP	DVI/HDMI Input	Positive DVI/HDMI Input for B Link Clock Channel	C3
RXB0N	DVI/HDMI Input	Negative DVI/HDMI Input for B Link Data Channel 0	C2
RXB0P	DVI/HDMI Input	Positive DVI/HDMI Input for B Link Data Channel 0	C1
RXB1N	DVI/HDMI Input	Negative DVI/HDMI Input for B Link Data Channel 1	D3
RXB1P	DVI/HDMI Input	Positive DVI/HDMI Input for B Link Data Channel 1	D2
RXB2N	DVI/HDMI Input	Negative DVI/HDMI Input for B Link Data Channel 2	D1
RXB2P	DVI/HDMI Input	Positive DVI/HDMI Input for B Link Data Channel 2	E3
RXCCKN	DVI/HDMI Input	Negative DVI/HDMI Input for C Link Clock Channel	AC8
RXCCKP	DVI/HDMI Input	Positive DVI/HDMI Input for C Link Clock Channel	AD8
RXC0N	DVI/HDMI Input	Negative DVI/HDMI Input for C Link Data Channel 0	AE8
RXC0P	DVI/HDMI Input	Positive DVI/HDMI Input for C Link Data Channel 0	AC9
RXC1N	DVI/HDMI Input	Negative DVI/HDMI Input for C Link Data Channel 1	AD9
RXC1P	DVI/HDMI Input	Positive DVI/HDMI Input for C Link Data Channel 1	AE9
RXC2N	DVI/HDMI Input	Negative DVI/HDMI Input for C Link Data Channel 2	AD10
RXC2P	DVI/HDMI Input	Positive DVI/HDMI Input for C Link Data Channel 2	AE10

## SOURCE OF DOCUMENTATION

### IC201 (MSB1222)

MSTAR Semiconductor; Preliminary Product Brief Version 0.1.

Low Power DVB-T/C Demodulator.

Doc. No.: msb1222\_pb\_v01. January 2009.

### IC 306 (MSH 9000-LF)

MSTAR Semiconductor; Preliminary Product Brief Version 0.3.

Power Management IC.

Doc. No.: MSH9000\_pb\_v03. April 2009.

### IC1001 (MSD3303GX)

MSTAR Semiconductor; Preliminary Pin Diagram and Description. Version 0.2.

DVB LCD/PDP DTV Processor.

Doc. No.: MSD3303GX\_pin\_v02 . April 2009.

MSTAR Semiconductor; Block Diagram. Version 0.1.

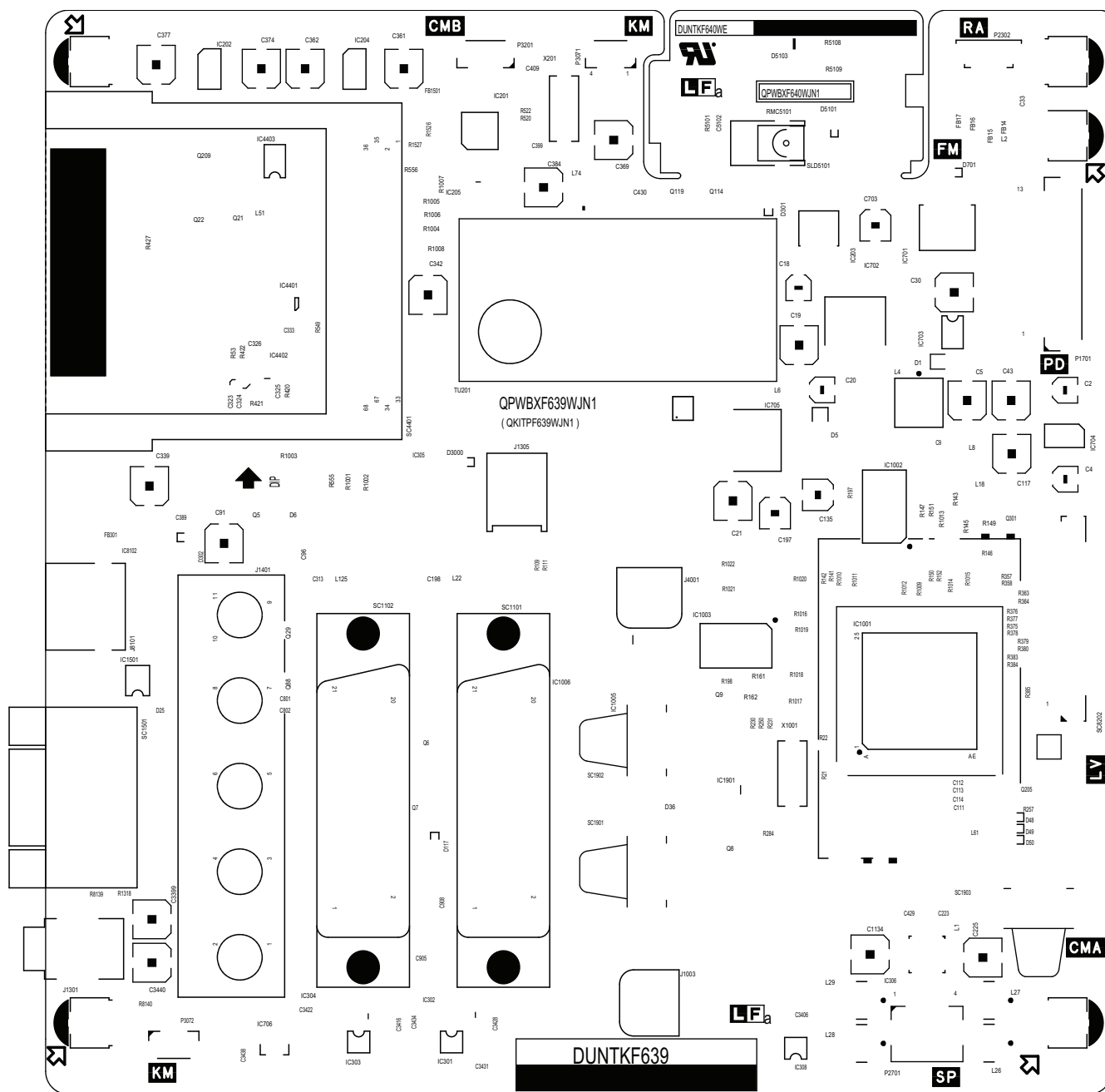
All-in-one DTV Processor.

Doc. No.: MSD3303GX\_bd\_v01. April 2009.

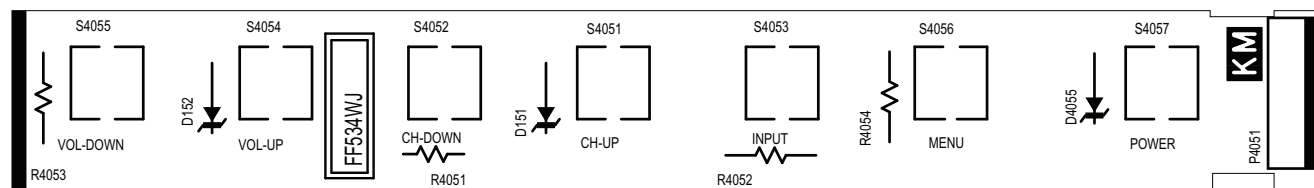
### Main Unit Layout QPWBXF639WJN1

Diagram showing the layout of the Main Unit (QPWBXF639WJN1) and the LED Unit (QPWBXF640WJN1). The Main Unit is a large rectangular board with various components labeled, including ICs (IC201, IC202, IC203, IC204, IC205, IC206, IC207, IC208, IC209, IC210, IC211, IC212, IC213, IC214, IC215, IC216, IC217, IC218, IC219, IC220, IC221, IC222, IC223, IC224, IC225, IC226, IC227, IC228, IC229, IC230, IC231, IC232, IC233, IC234, IC235, IC236, IC237, IC238, IC239, IC240, IC241, IC242, IC243, IC244, IC245, IC246, IC247, IC248, IC249, IC250, IC251, IC252, IC253, IC254, IC255, IC256, IC257, IC258, IC259, IC260, IC261, IC262, IC263, IC264, IC265, IC266, IC267, IC268, IC269, IC270, IC271, IC272, IC273, IC274, IC275, IC276, IC277, IC278, IC279, IC280, IC281, IC282, IC283, IC284, IC285, IC286, IC287, IC288, IC289, IC290, IC291, IC292, IC293, IC294, IC295, IC296, IC297, IC298, IC299, IC300, IC301, IC302, IC303, IC304, IC305, IC306, IC307, IC308, IC309, IC310, IC311, IC312, IC313, IC314, IC315, IC316, IC317, IC318, IC319, IC320, IC321, IC322, IC323, IC324, IC325, IC326, IC327, IC328, IC329, IC330, 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## LED Unit PWB (QPWBXF640WJN1)



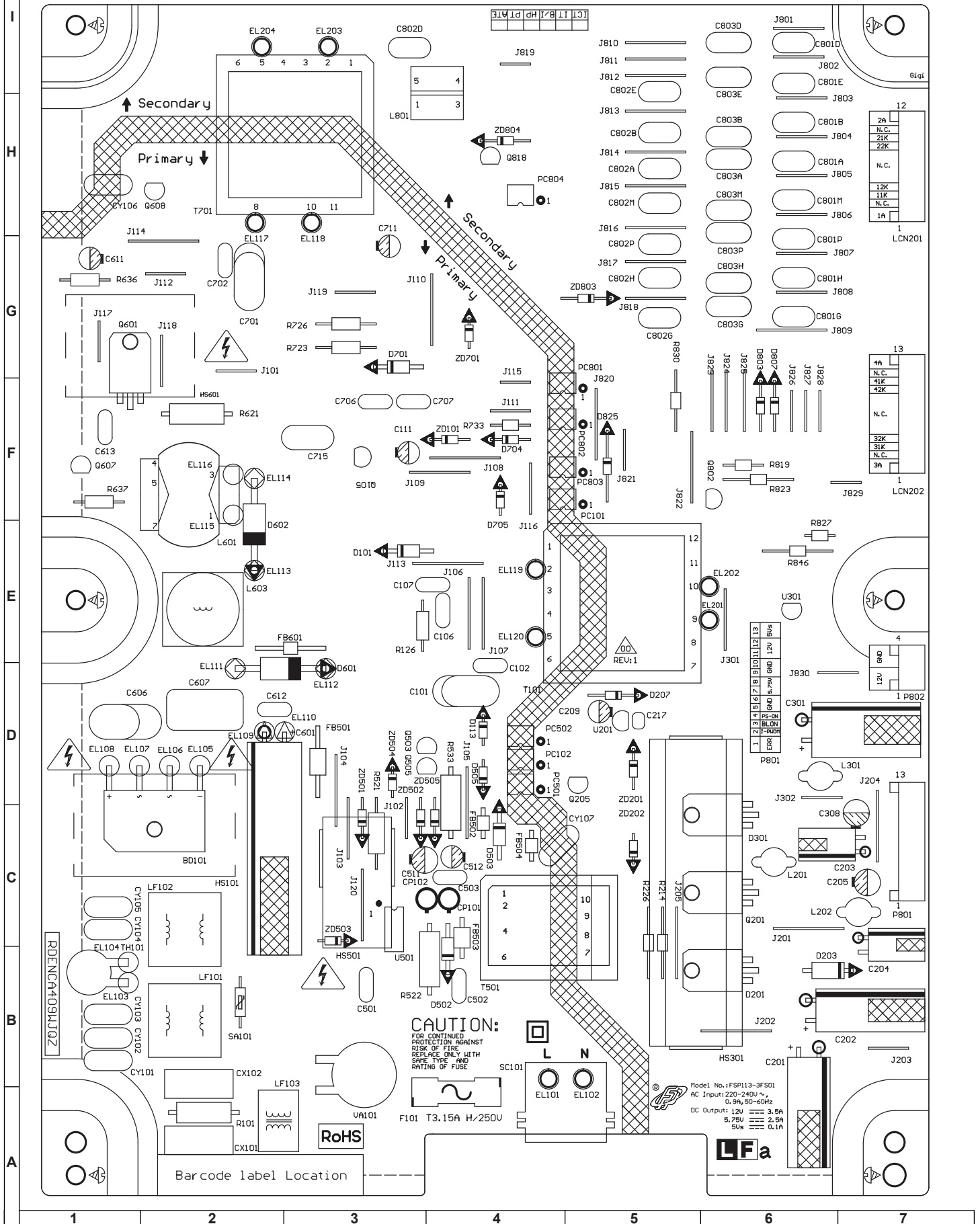
B							
A	1	2	3	4	5	6	7



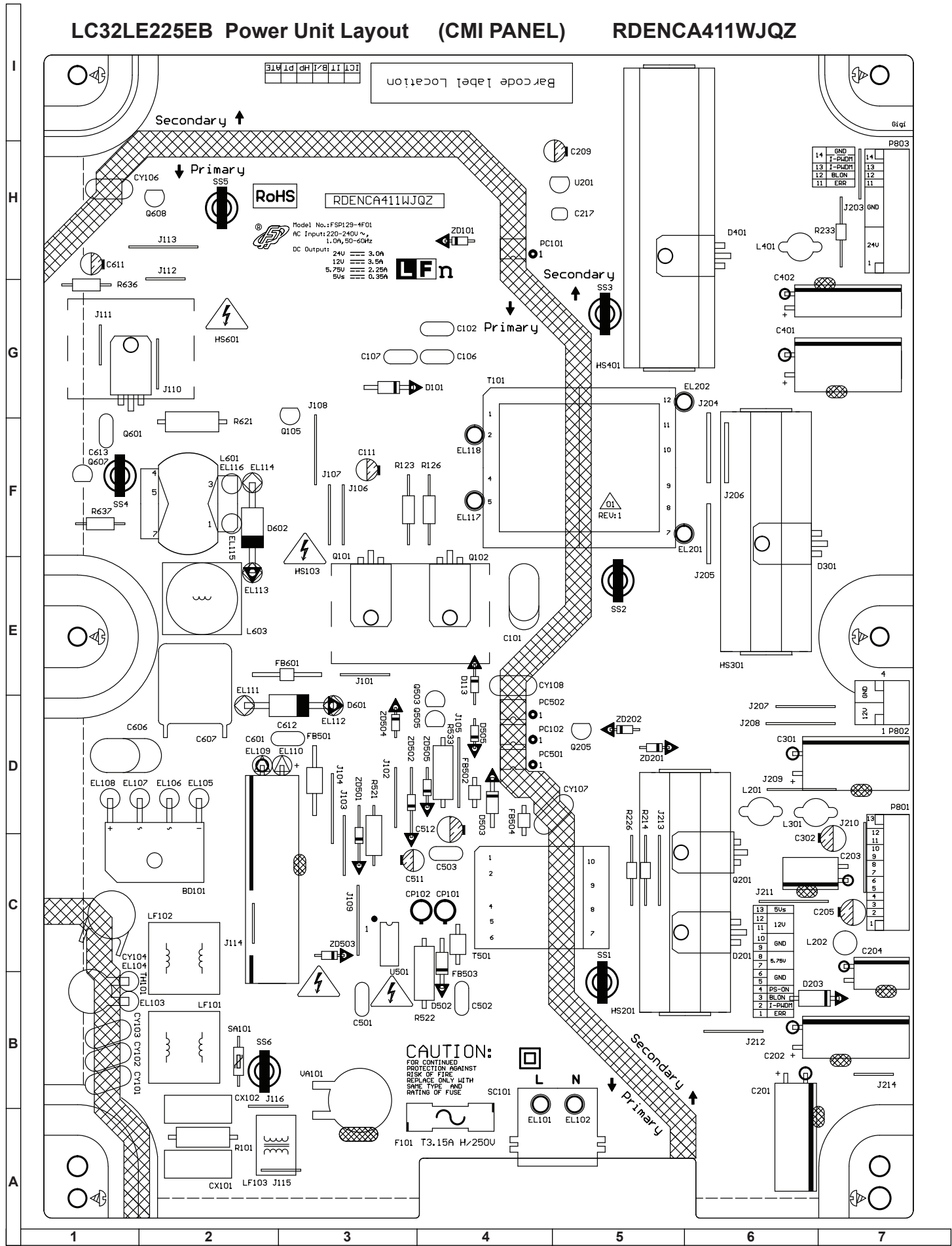
LC32LE225E Power Unit Layout

(AUO PANEL)

RDENCA409WJQZ

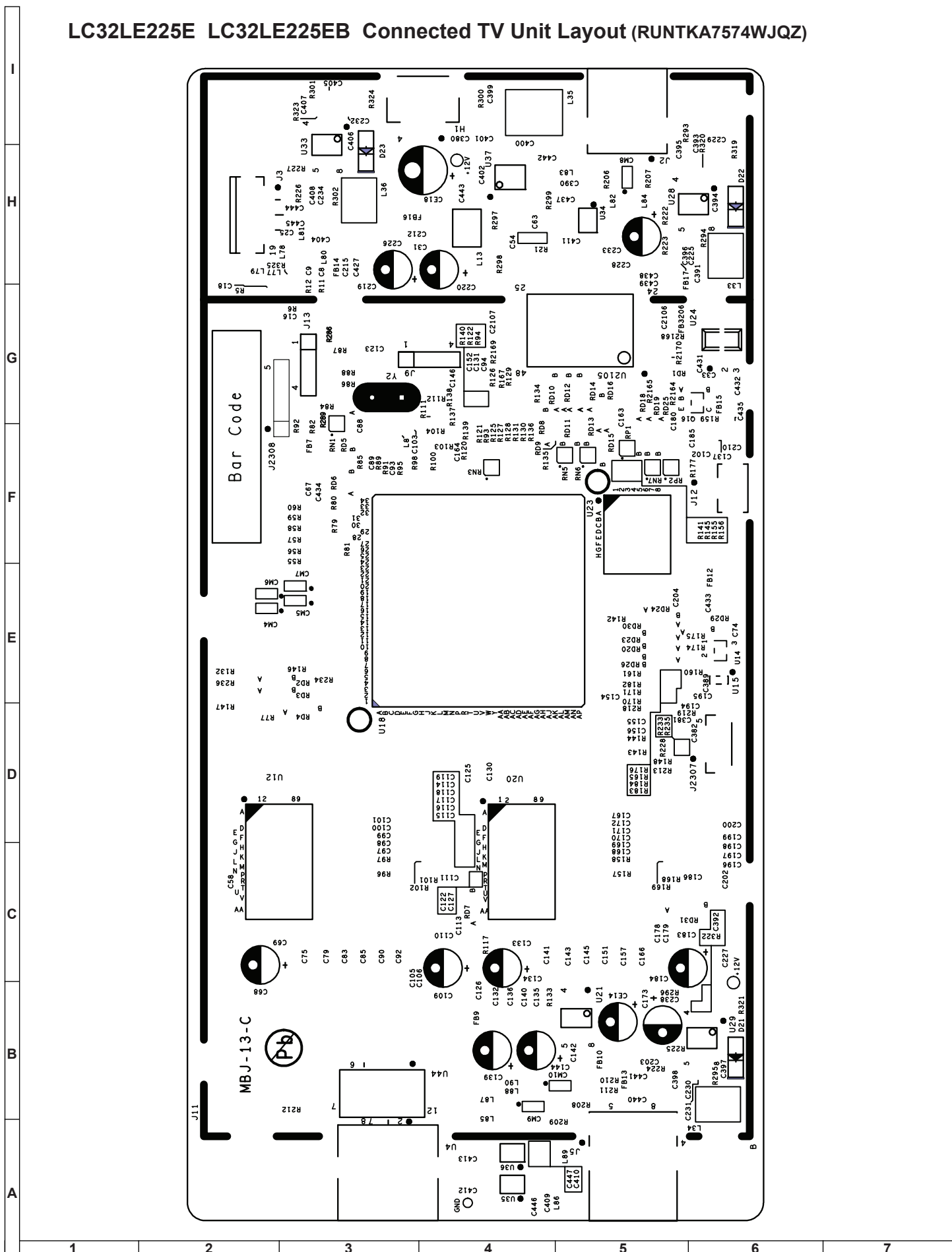


**RDENCA411WJQZ**

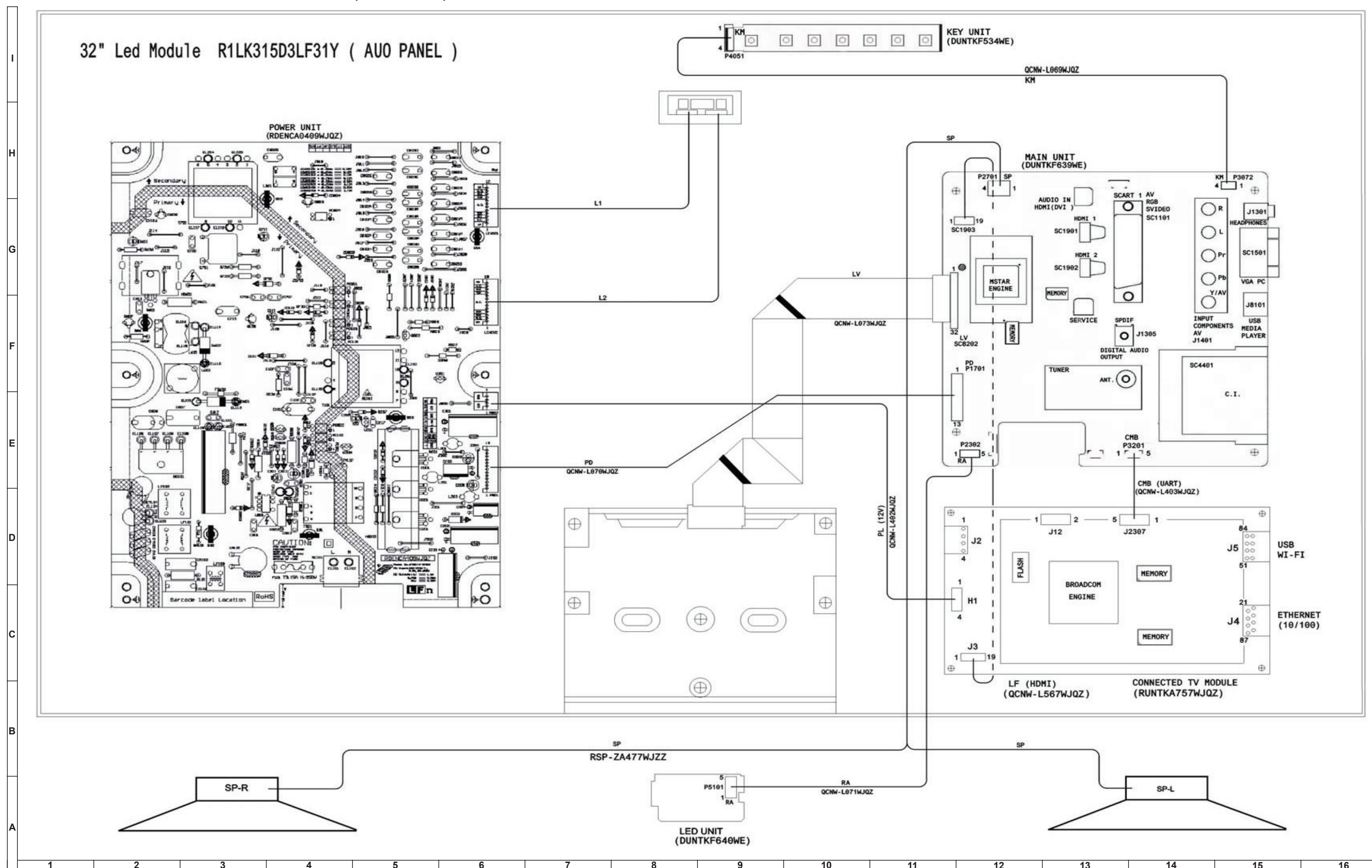




## LC32LE225E LC32LE225EB Connected TV Unit Layout (RUNTKA7574WJQZ)

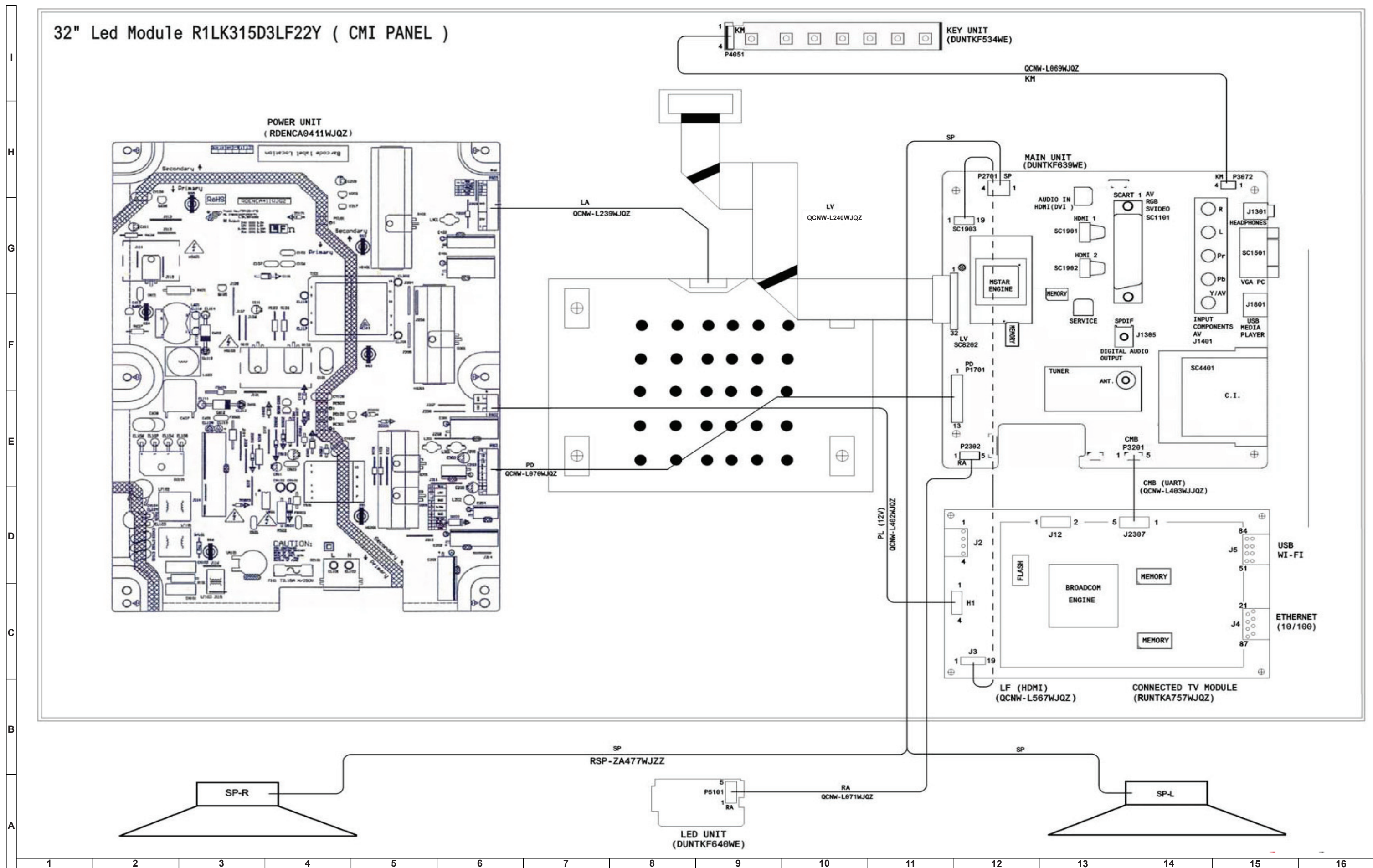


## LC32LE225E OVERALL WIRING DIAGRAM (AUO PANEL)

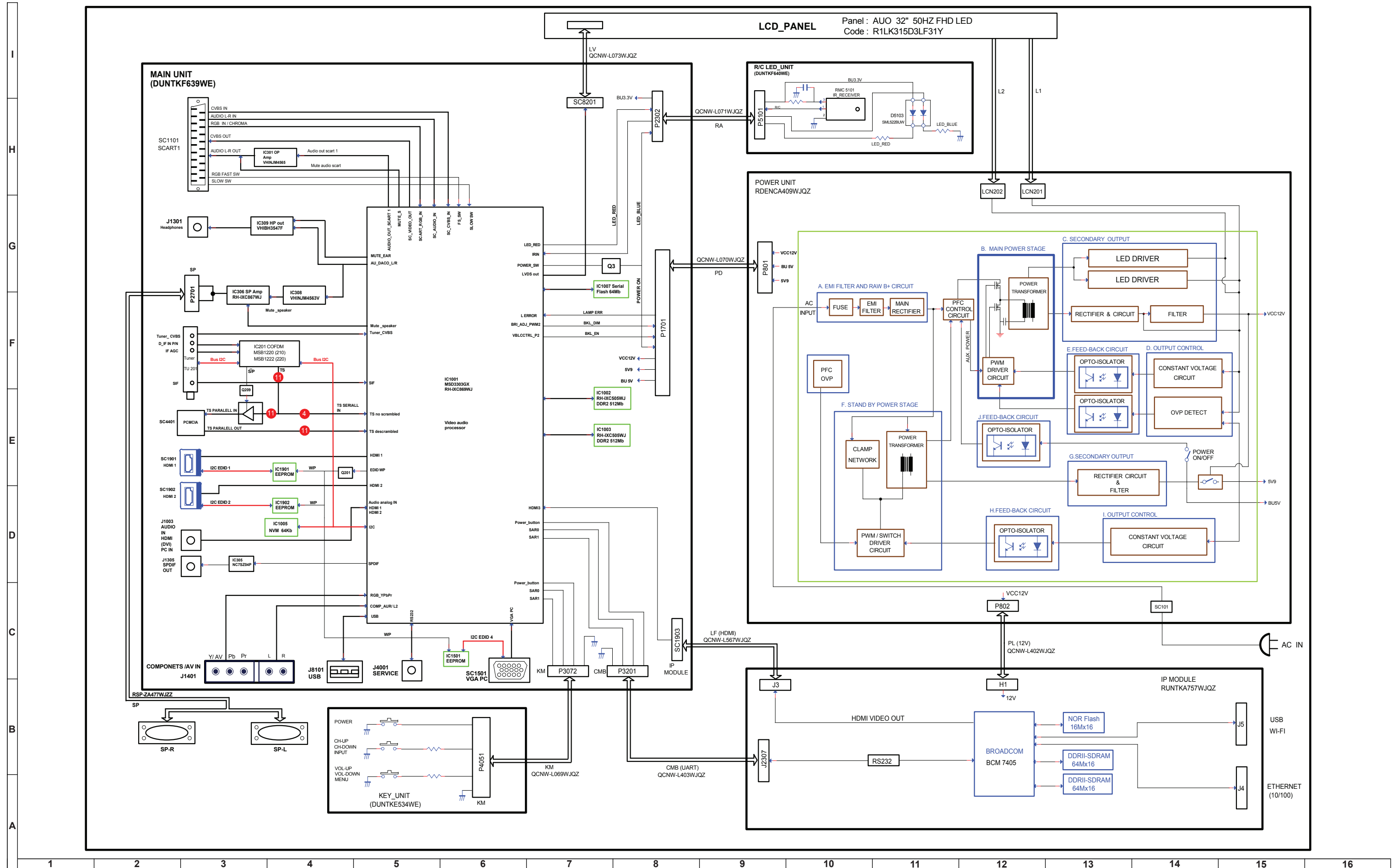




## LC32LE225EB OVERALL WIRING DIAGRAM (CMI PANEL)

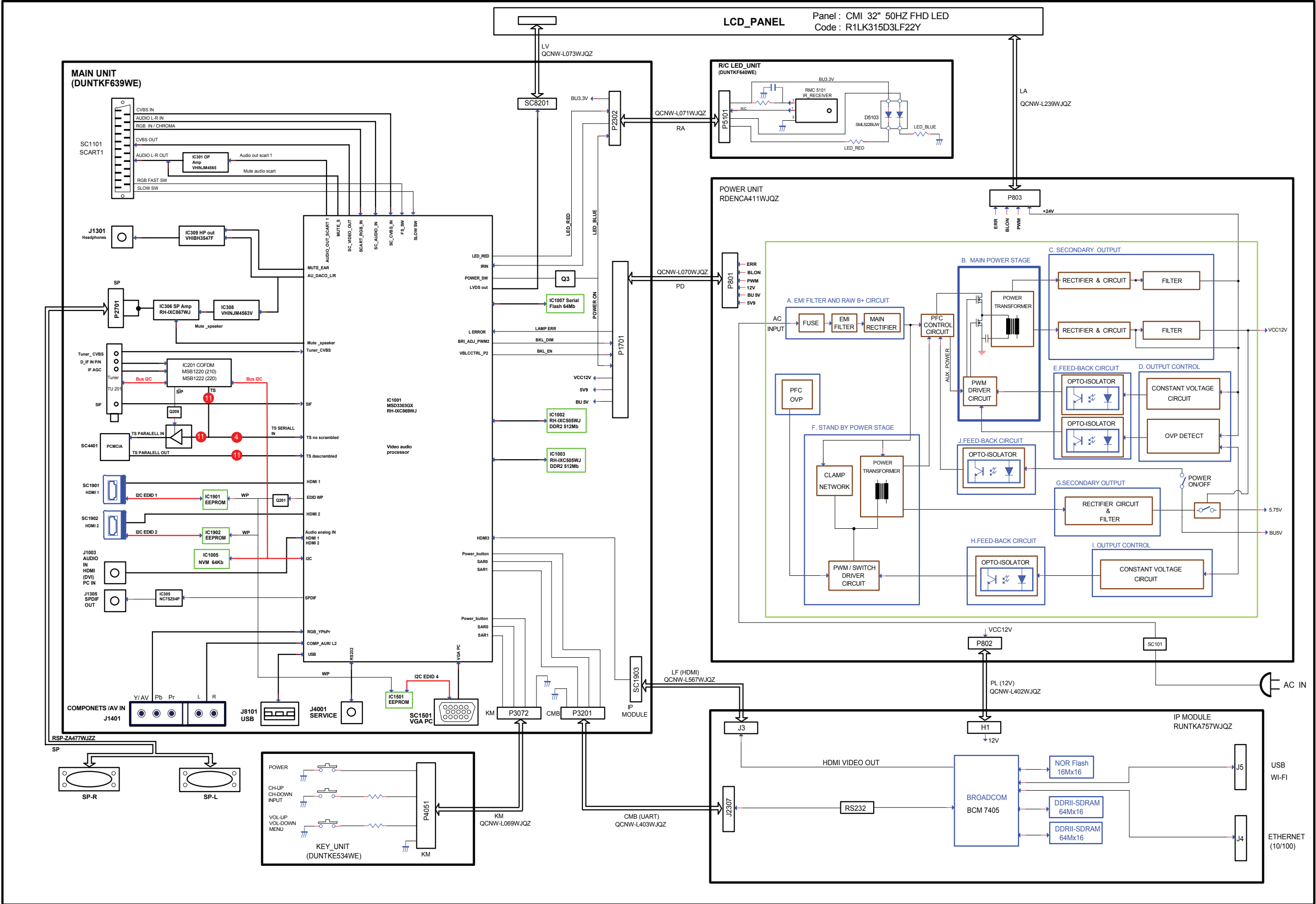


### LC32LE225E SYSTEM BLOCK DIAGRAM (AUO PANEL)



LC32LE225EB SYSTEM BLOCK DIAGRAM (CMI PANEL)

I  
H  
G  
F  
E  
D  
C  
B  
A

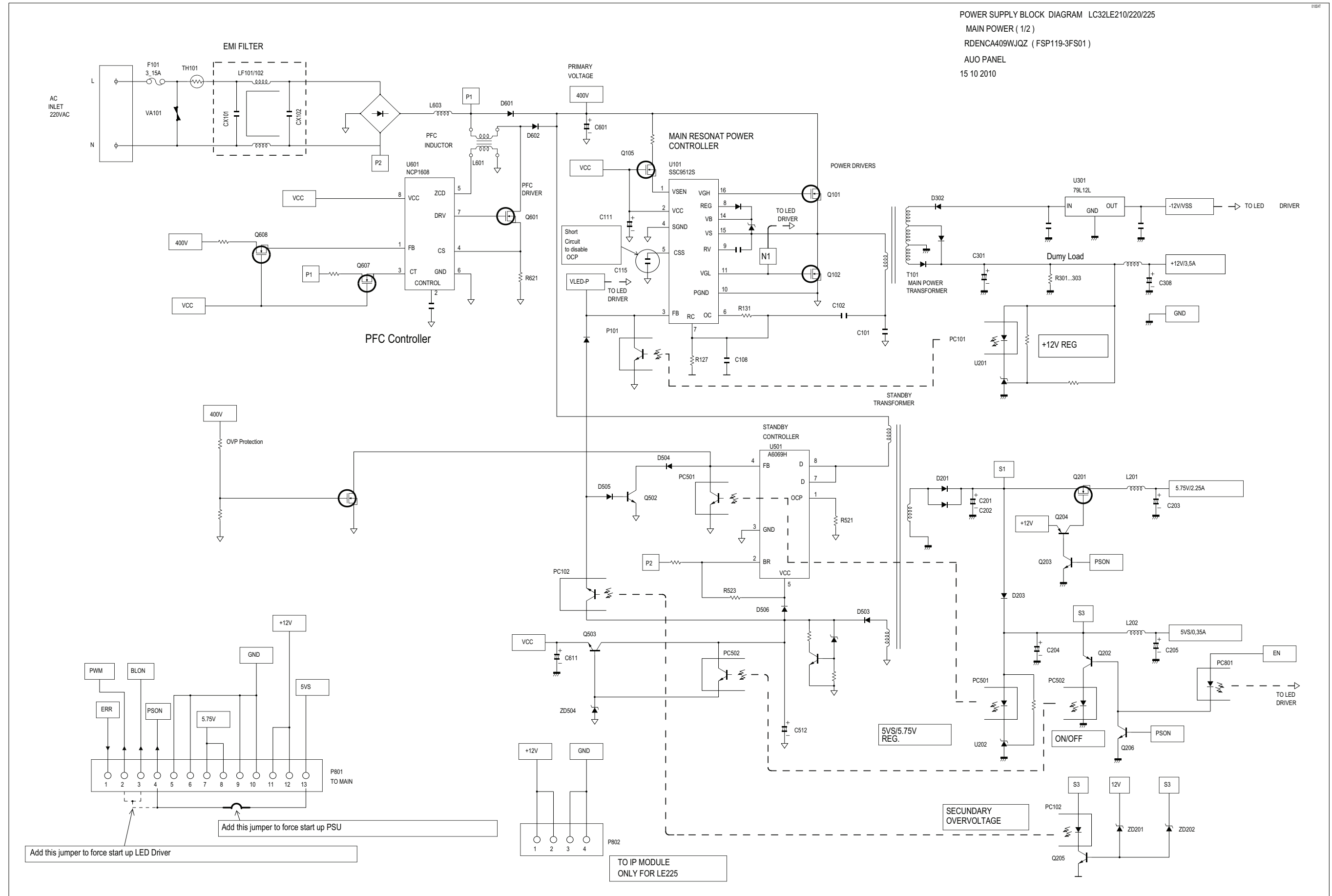




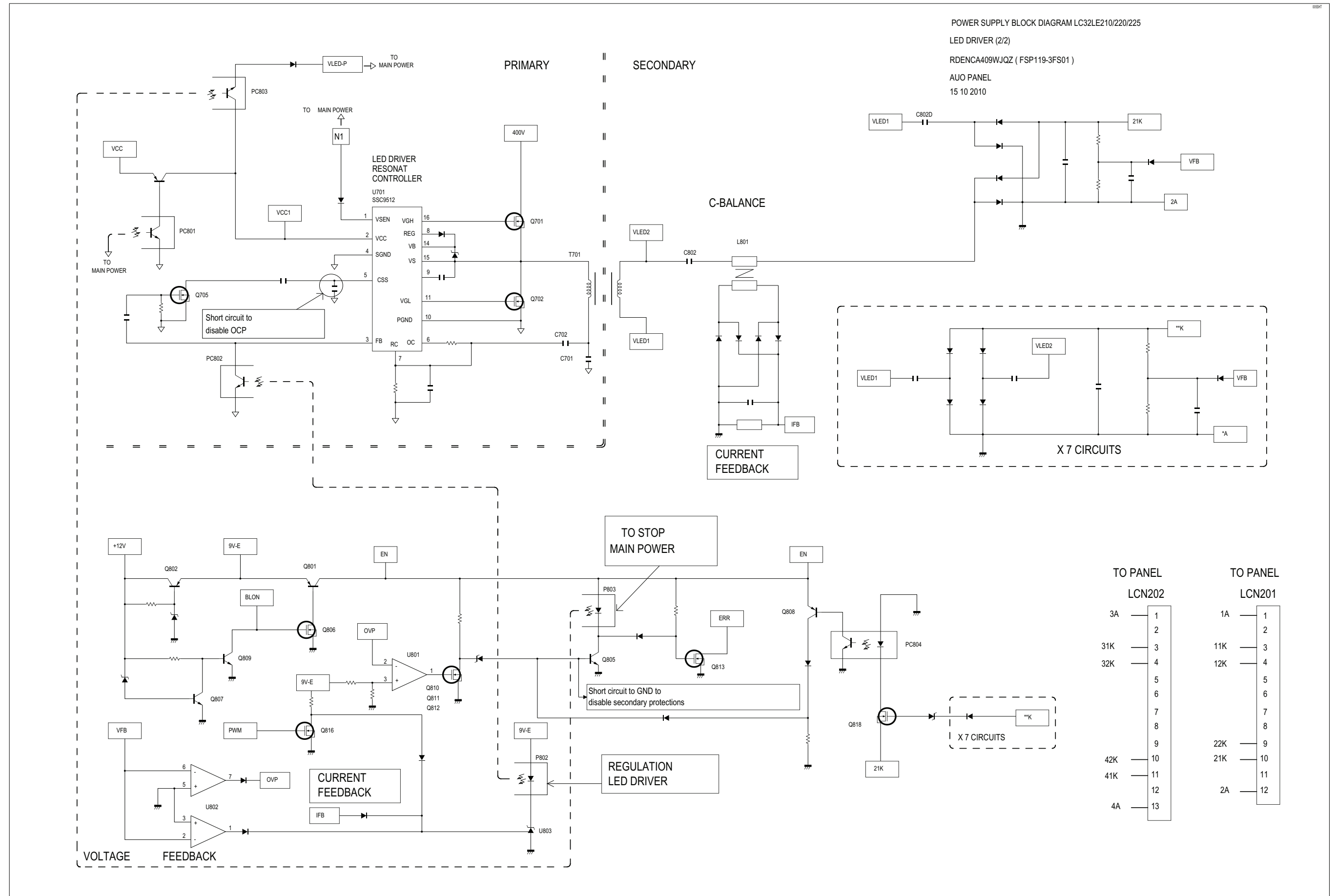




### LC32LE225E POWER BLOCK DIAGRAM RDENCA409WJQZ (AUO PANEL) (1/2: MAIN POWER)



### LC32LE225E POWER BLOCK DIAGRAM RDENCA409WJQZ (AUO PANEL) (2/2: LED DRIVER)



SCHEMATIC DIAGRAMS

Description:

VOLTAGE MEASUREMENT CONDITION:

- 1. The voltages at test points are measured on the stable supply voltage of AC 230V. Signals are fed by a color bar signal generator for servicing purpose and the above voltages are measured with a 20k ohm/V tester.

INDICATION OF RESISTOR & CAPACITOR:

RESISTOR

- 1. The unit of resistance “Ω” is omitted. (K=kΩ=1000 Ω, M=MΩ).
- 2. All resistors are ± 5%, unless otherwise noted. (J= ± 5%, F= ± 1%, D= ± 0.5%)
- 3. All resistors are 1/16W, unless otherwise noted.
- 4. All resistors are Carbon type, unless otherwise noted.

- Ⓒ: Solid

Ⓔ: Cement

Ⓔ: Cement

Ⓔ: Cement
- Ⓔ: Cement

Ⓔ: Cement

Ⓔ: Cement

Ⓔ: Cement

CAPACITOR


- 1. All capacitors are μF, unless otherwise noted. (P=pF=μμ F).
  - 2. All capacitors are 50V, unless otherwise noted.
  - 3. All capacitors are Ceramic type, unless otherwise noted.
- (ML): Mylar

(TA): Tantalum

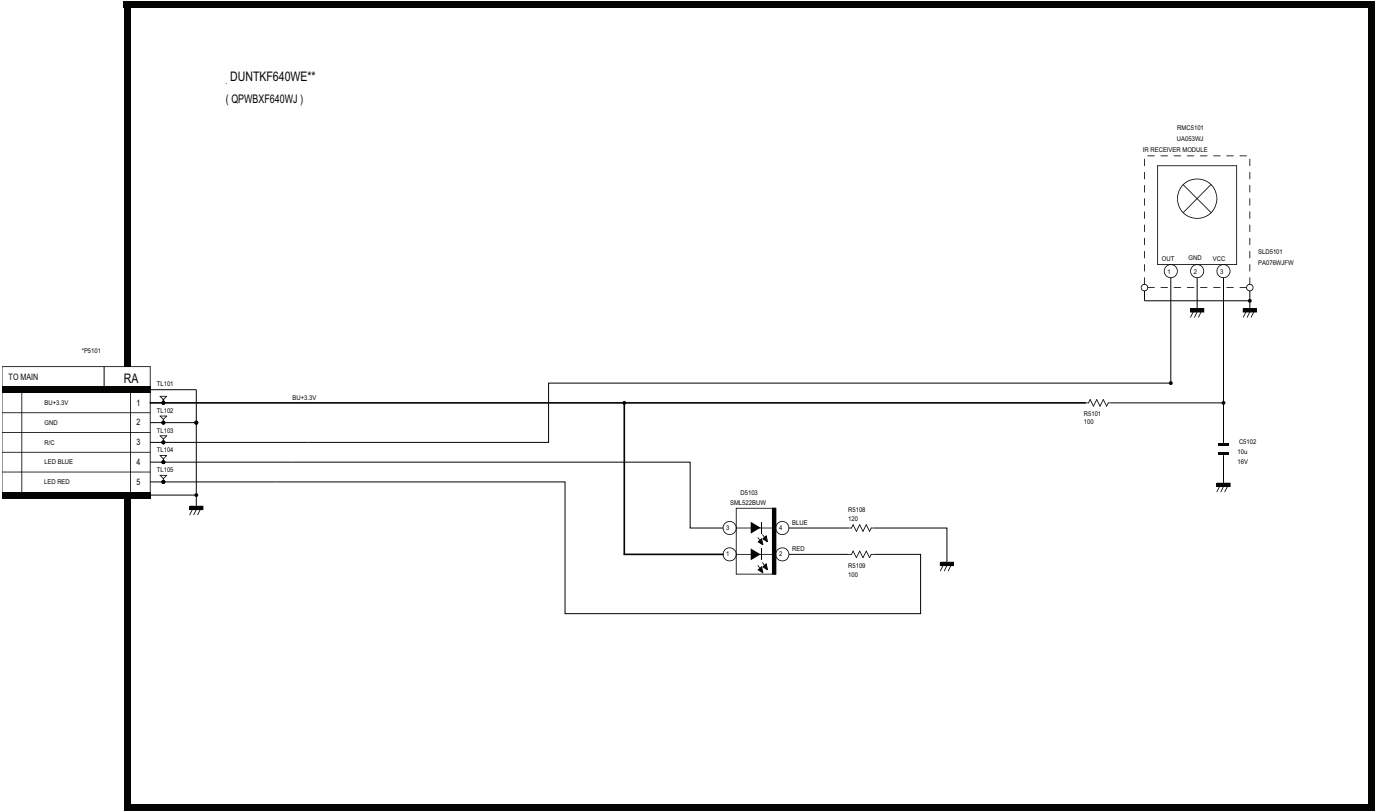
(PF): Polypro Film

(ST): Styrol

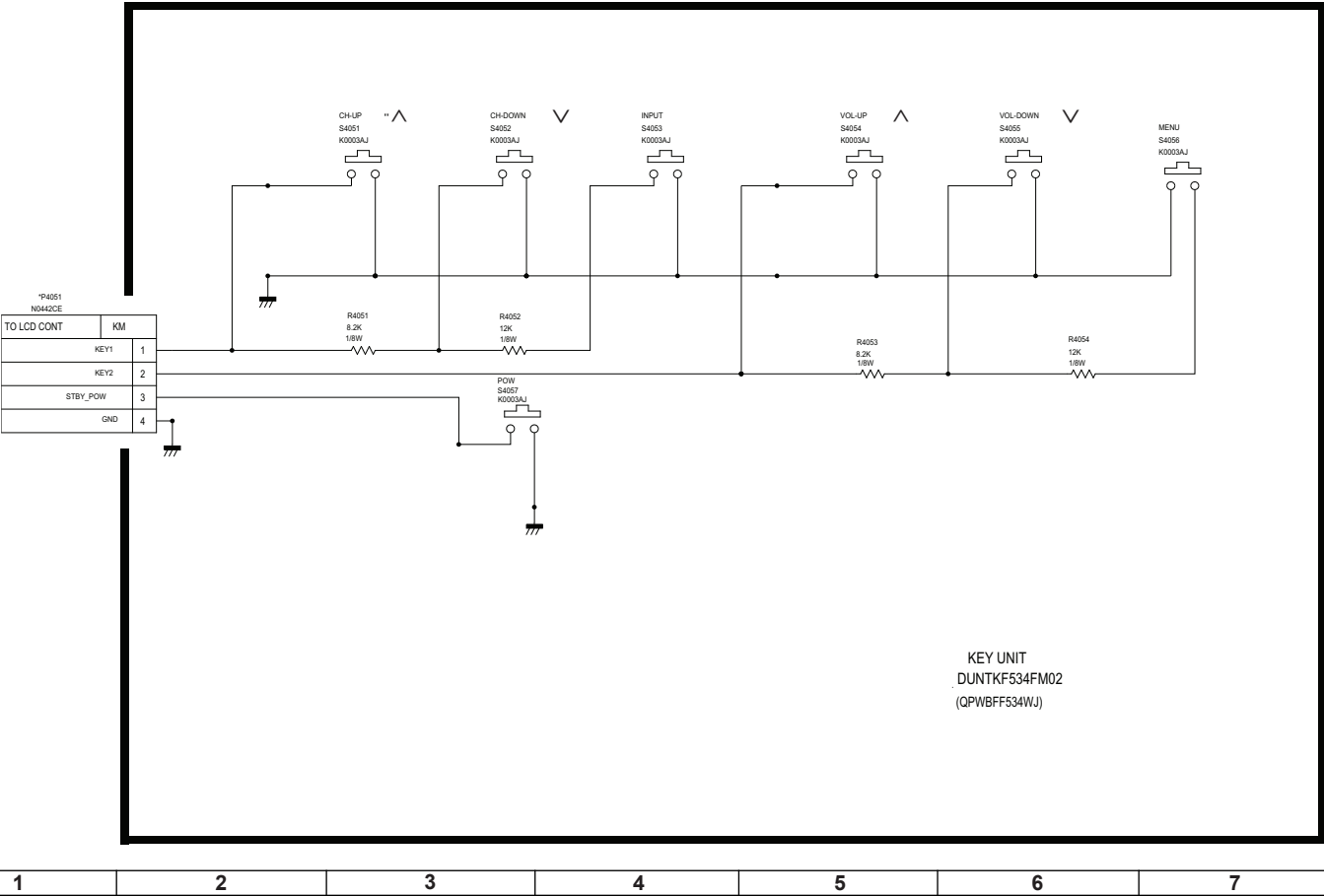
**CAUTION:**  
This circuit diagram is original one, therefore there may be a slight difference from yours.

**IMPORTANT SAFETY NOTICE:**  
PARTS MARKED WITH “ ⚠ ” (  ) ARE  
IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

LED Unit Diagram DUNTKF640WE08 / 09

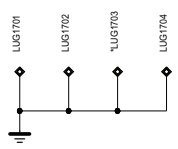
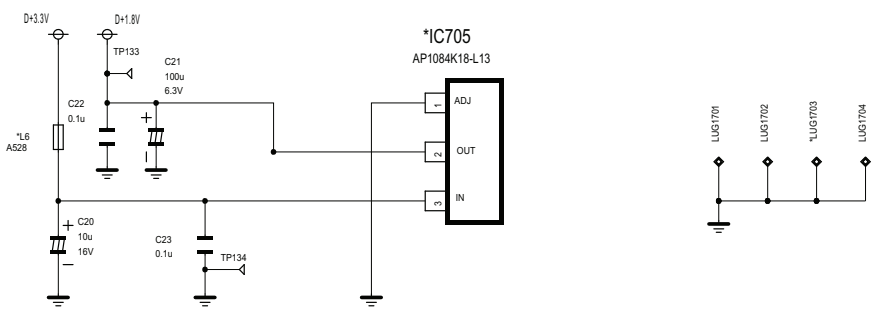
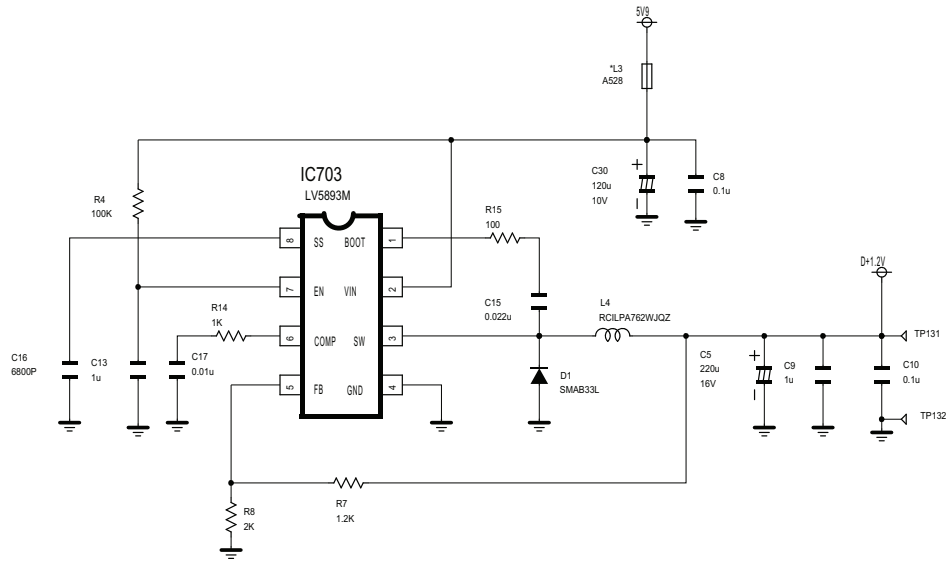
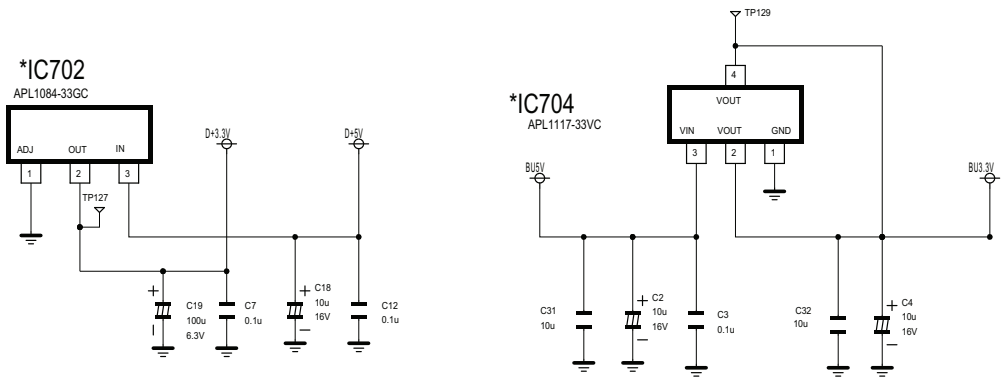
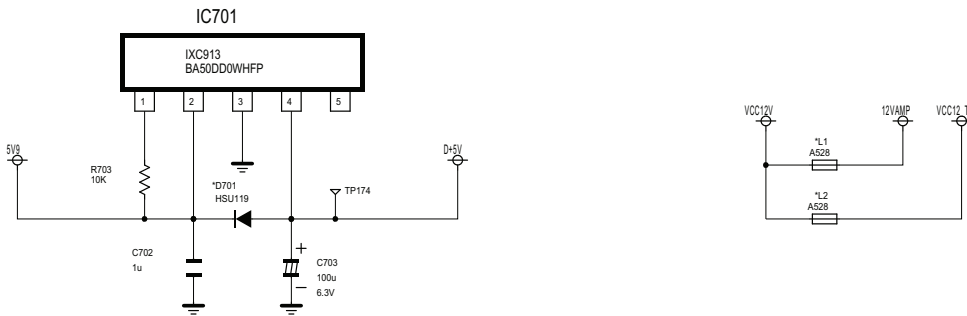
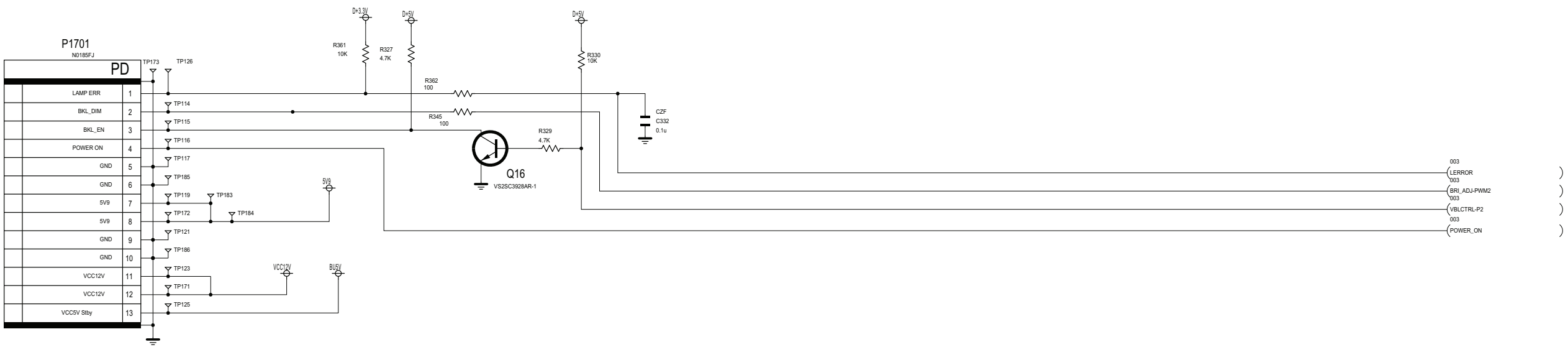


KEY Unit Diagram DUNTKF534WE02



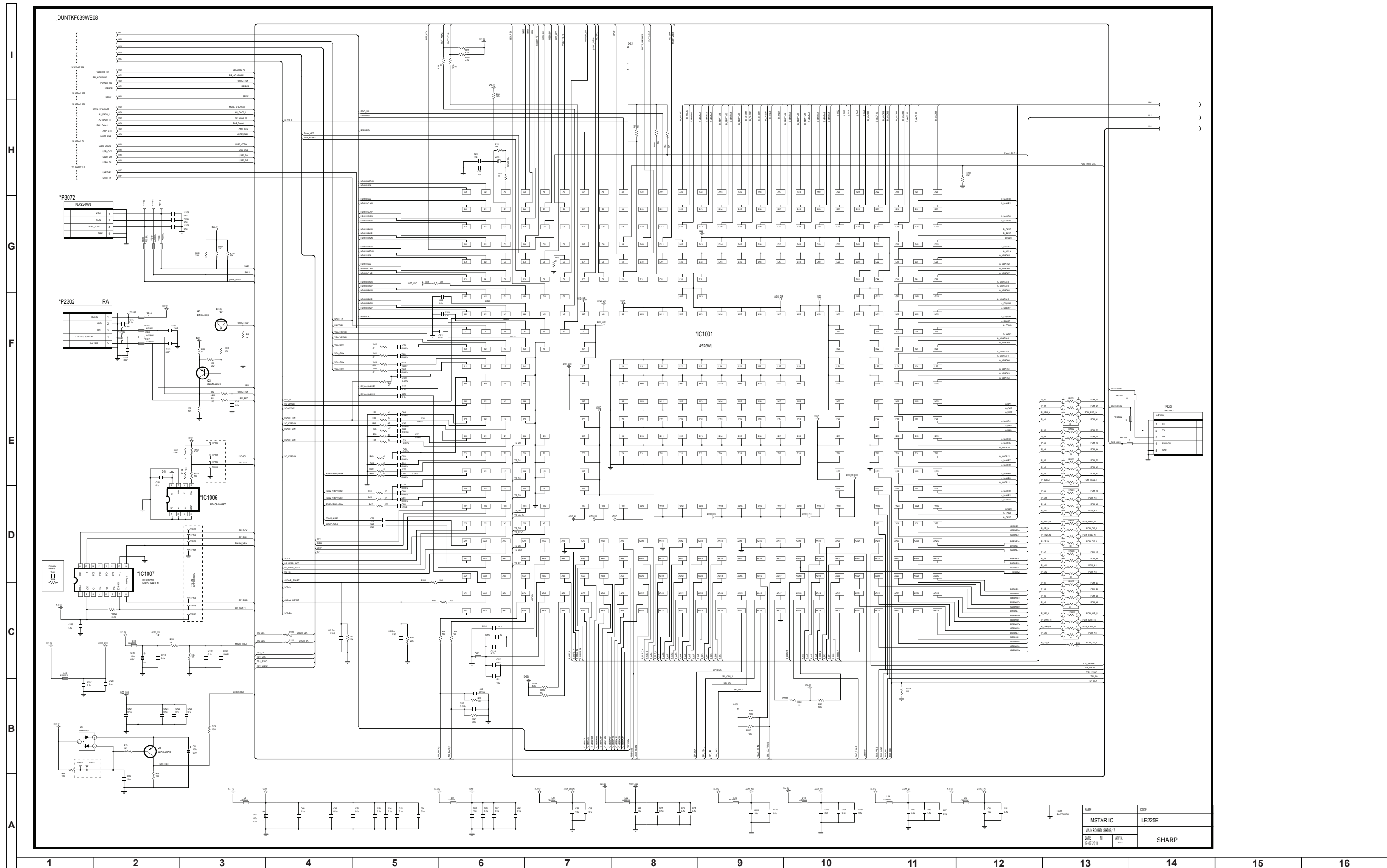
Main Unit Diagram 1/14 (System Power) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)

DUNTKF639WE08



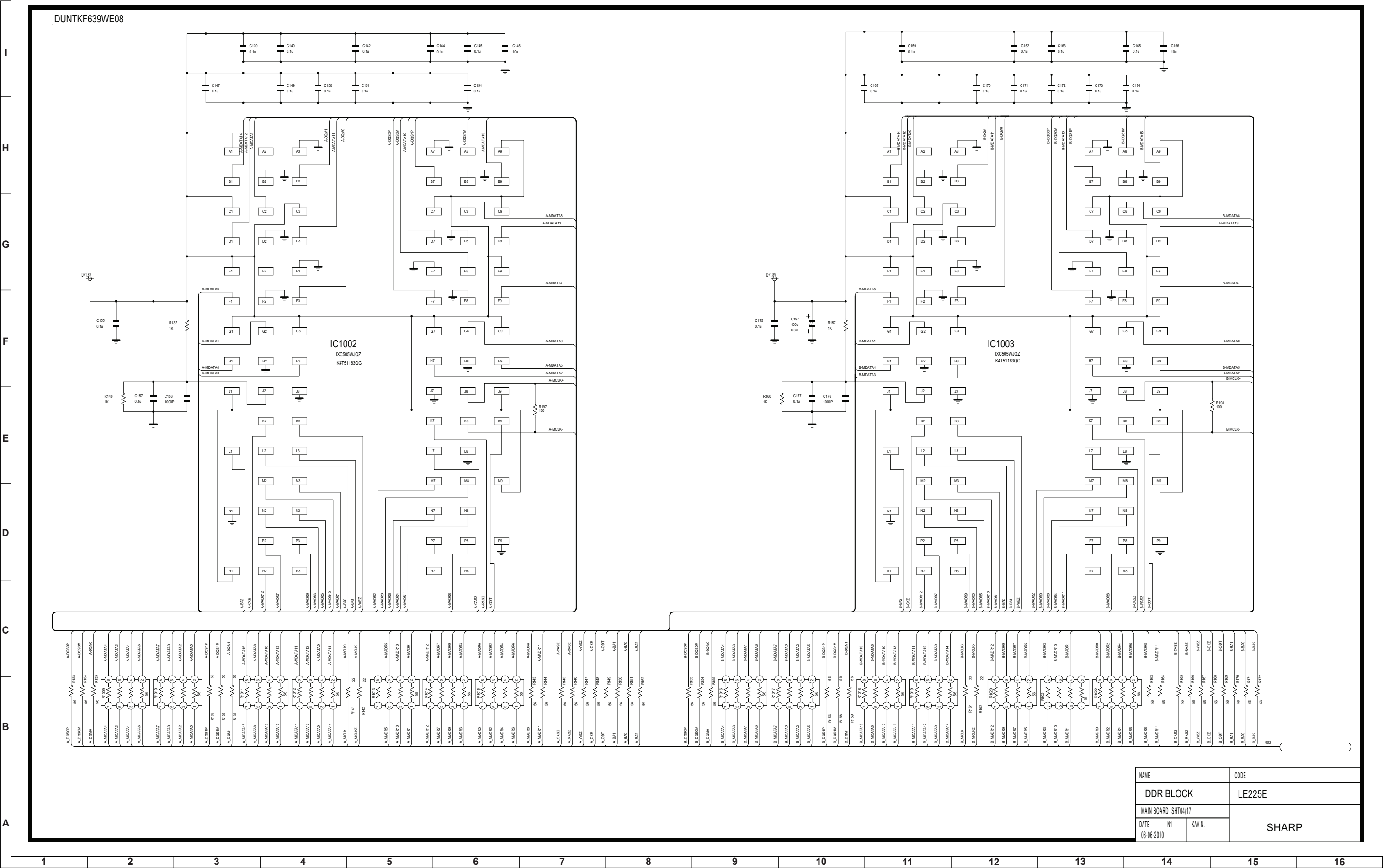
NAME		CODE
System Power		LE225E
MAIN BOARD SHT02/17		SHARP
DATE	N1 09-06-2010	
ATV N.	*****	

## Main Unit Diagram 2/14 (MSTAR IC) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)

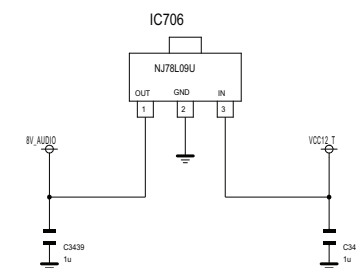
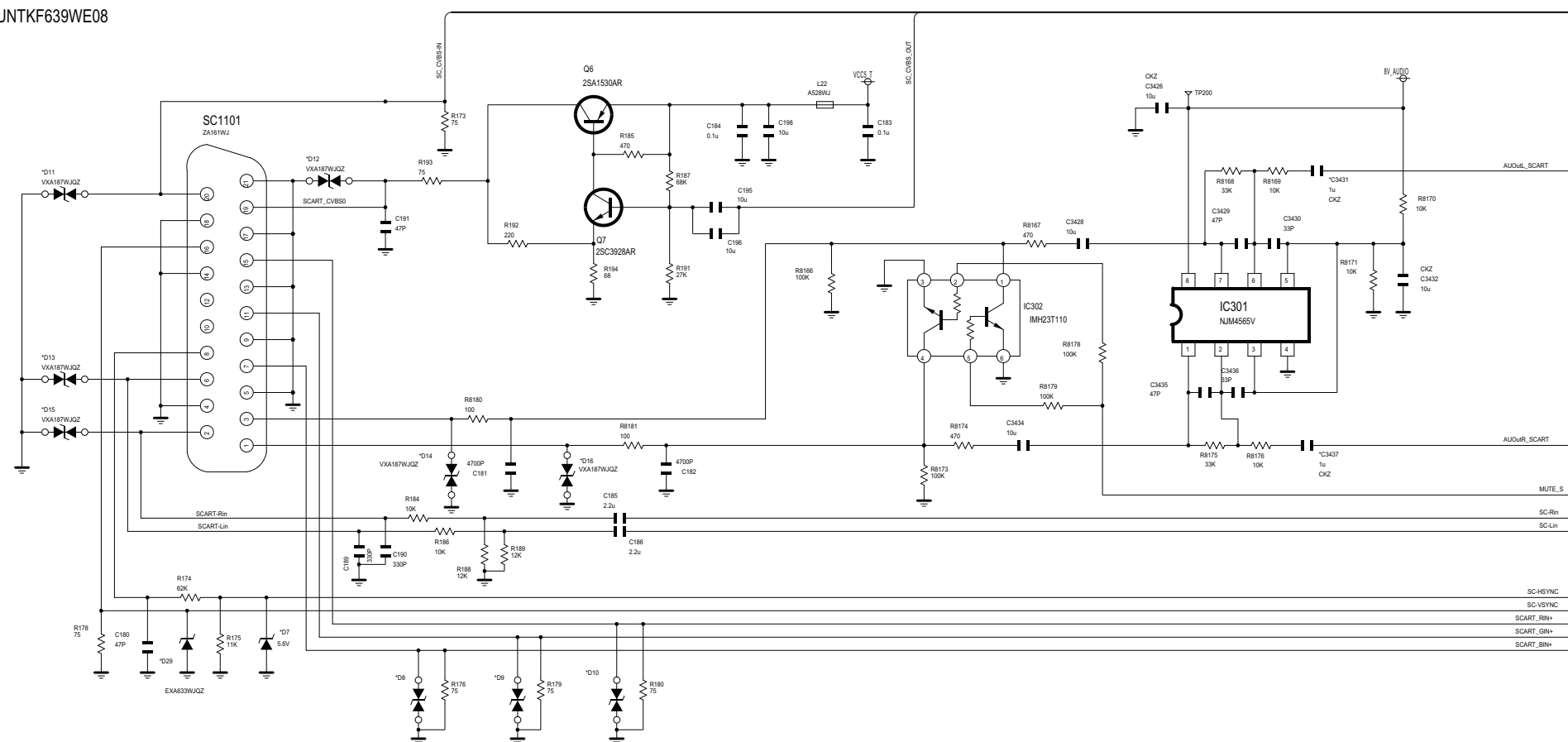




Main Unit Diagram 3/14 (DDR BLOCK) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)



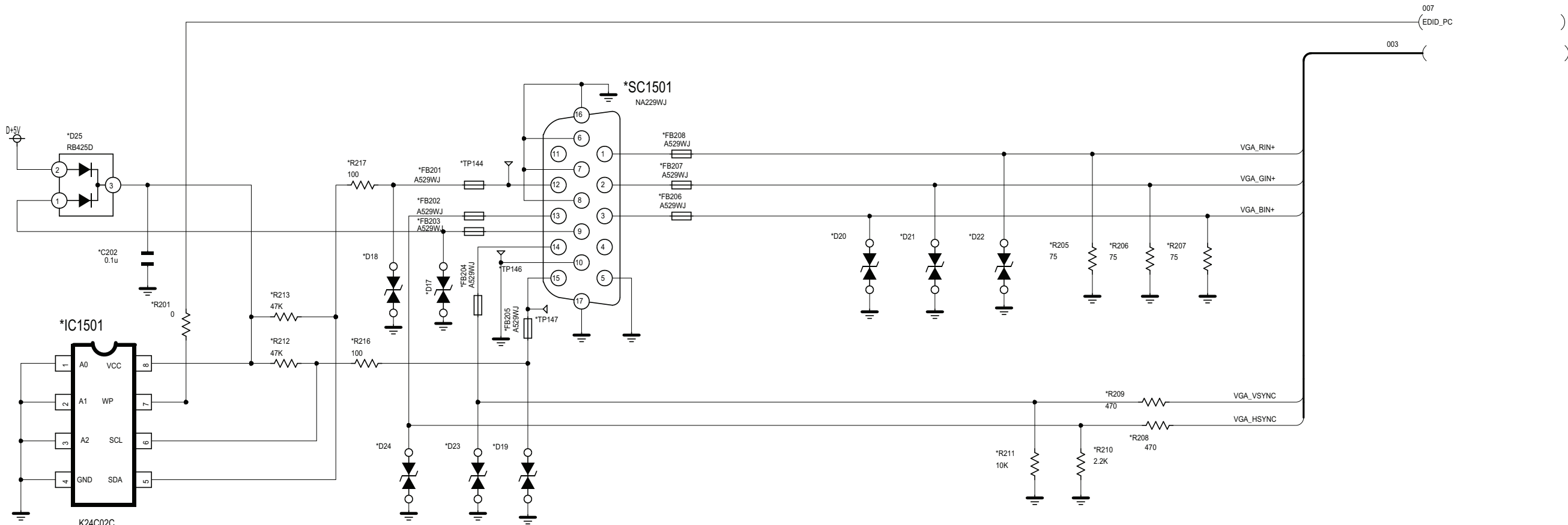
**Main Unit Diagram 4/14 (SCART) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)**



NAME		CODE
SCART		LE225E
MAIN BOARD SHT05/17		SHARP
DATE 08.06.2010	N1 KAV N.	

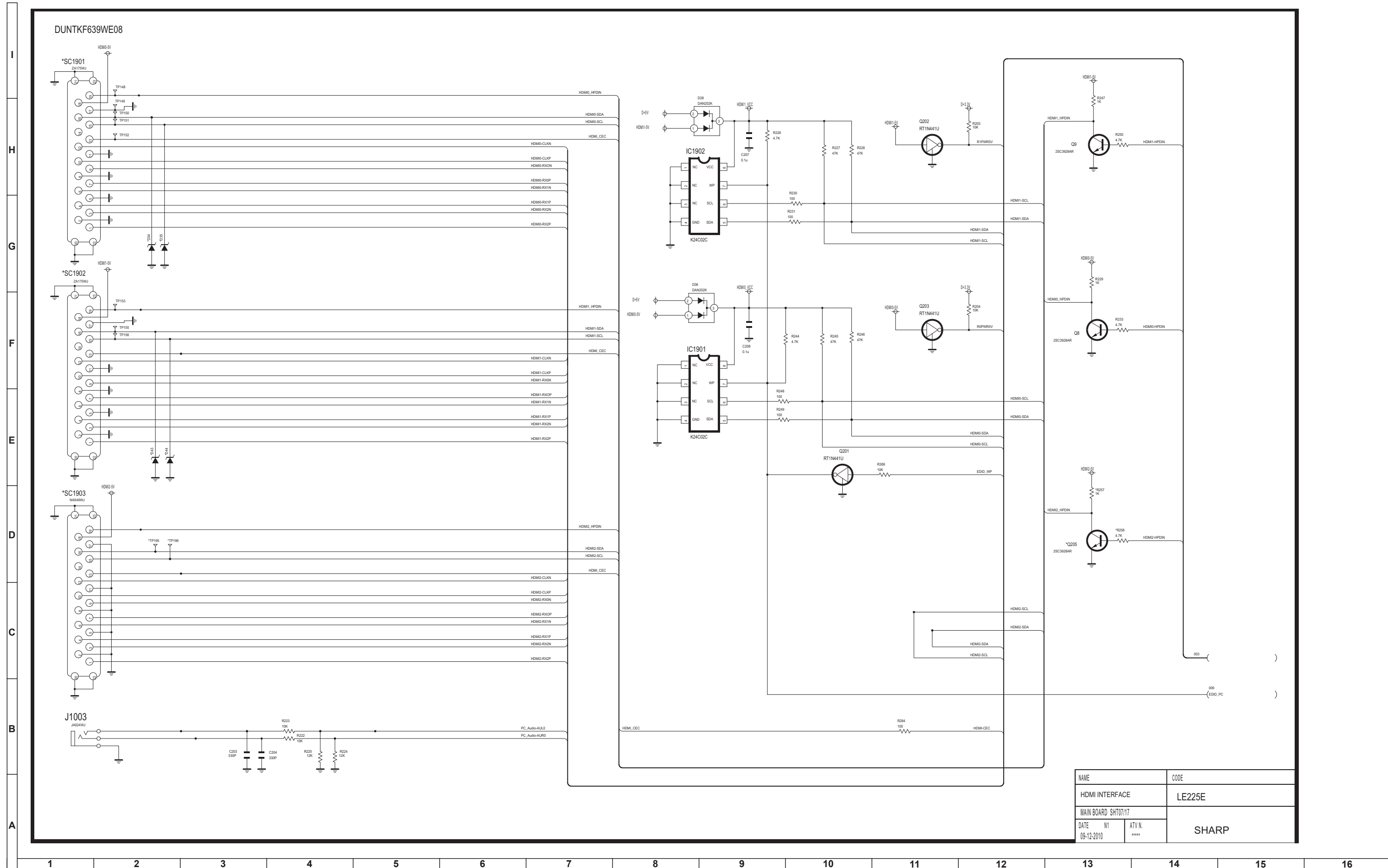
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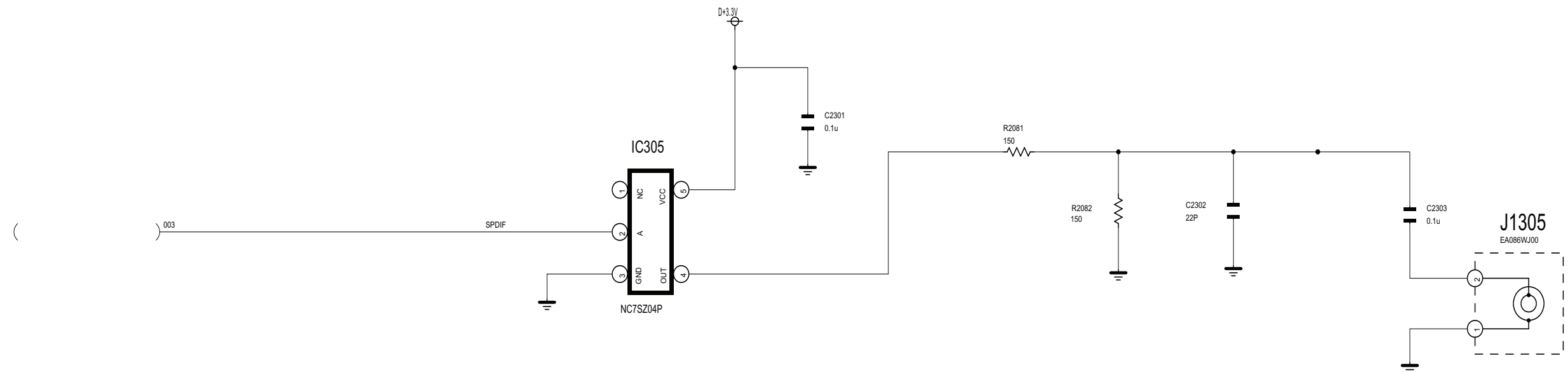
DUNTKF639WE08



NAME		CODE
VGA		LE225E
MAIN BOARD SHT06/17		SHARP
DATE N1 08-06-2010	KAV N.	

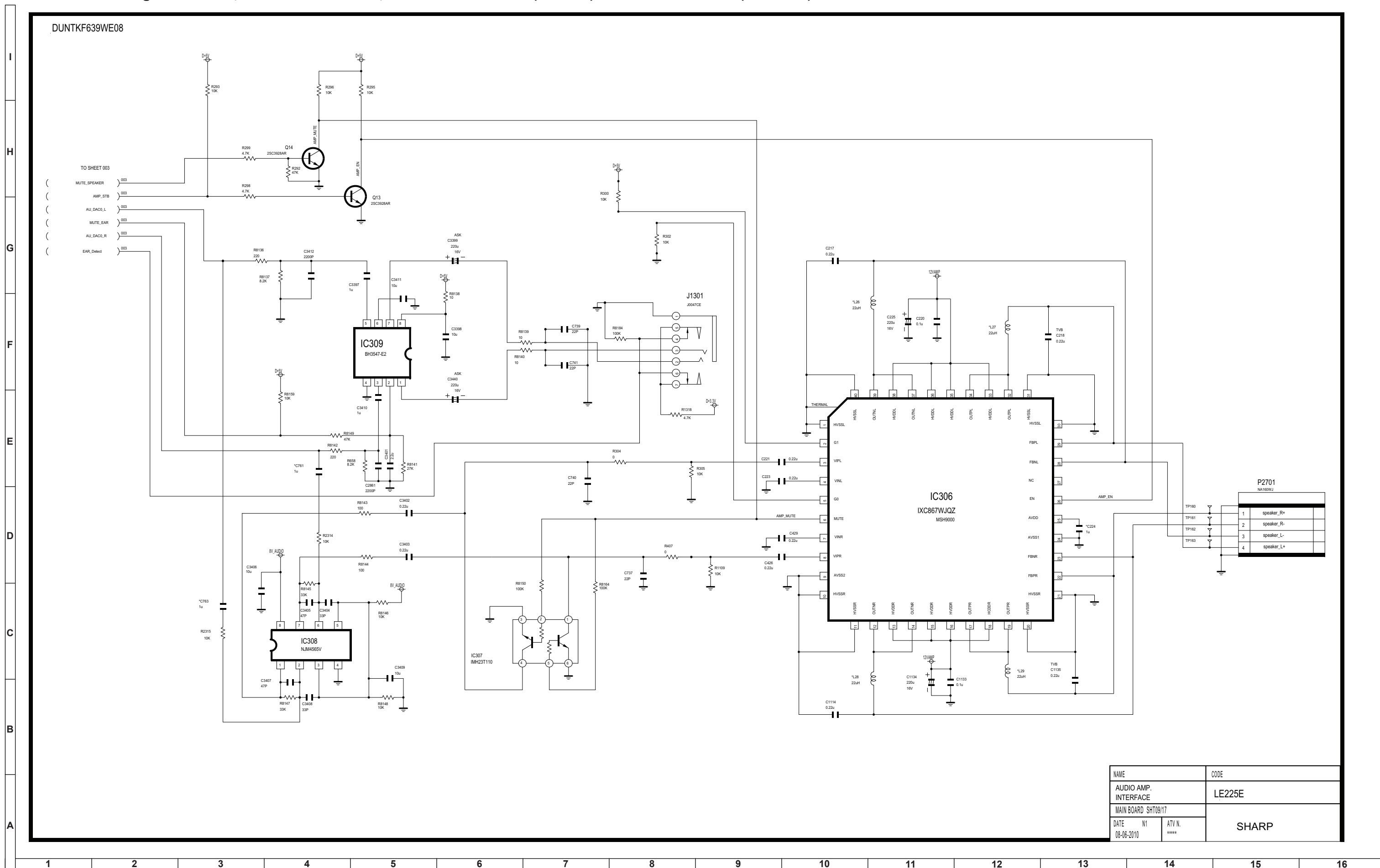
## Main Unit Diagram 6/14 (HDMI INTERFACE) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)



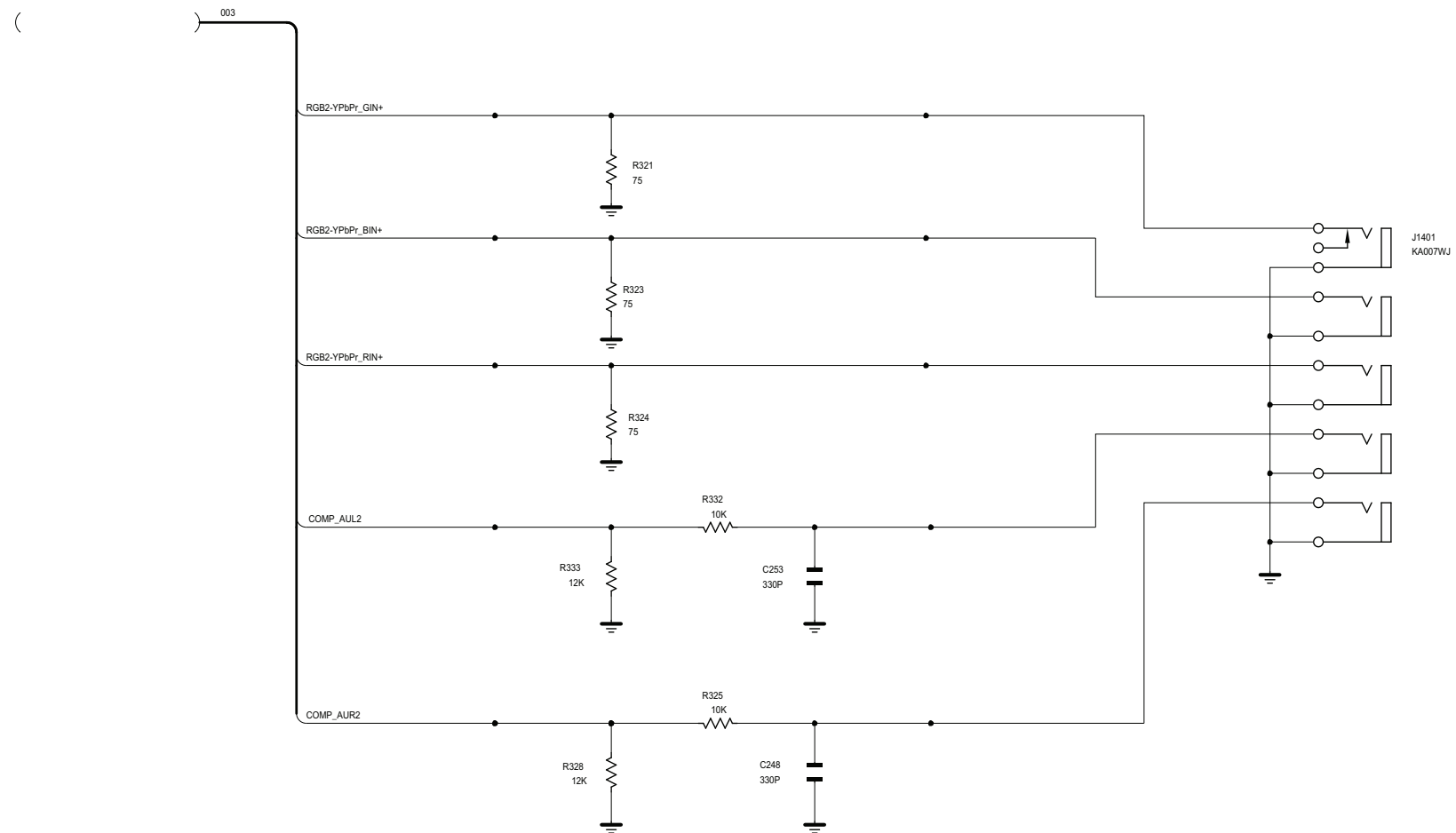


NAME		CODE
AUDIO INTERFACE		LE225E
MAIN BOARD SHT08/17		SHARP
DATE N1 19-05-2010	KAV N.	

## Main Unit Diagram 8/14 (AUDIO AMP. INTERFACE) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)



**Main Unit Diagram 9/14 (VIDEO INTERFACE) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)**



NAME		CODE
VIDEO INTERFACE		LE225E
MAIN BOARD SHT10/17		SHARP
DATE N1 19-05-2010	KAV N.	

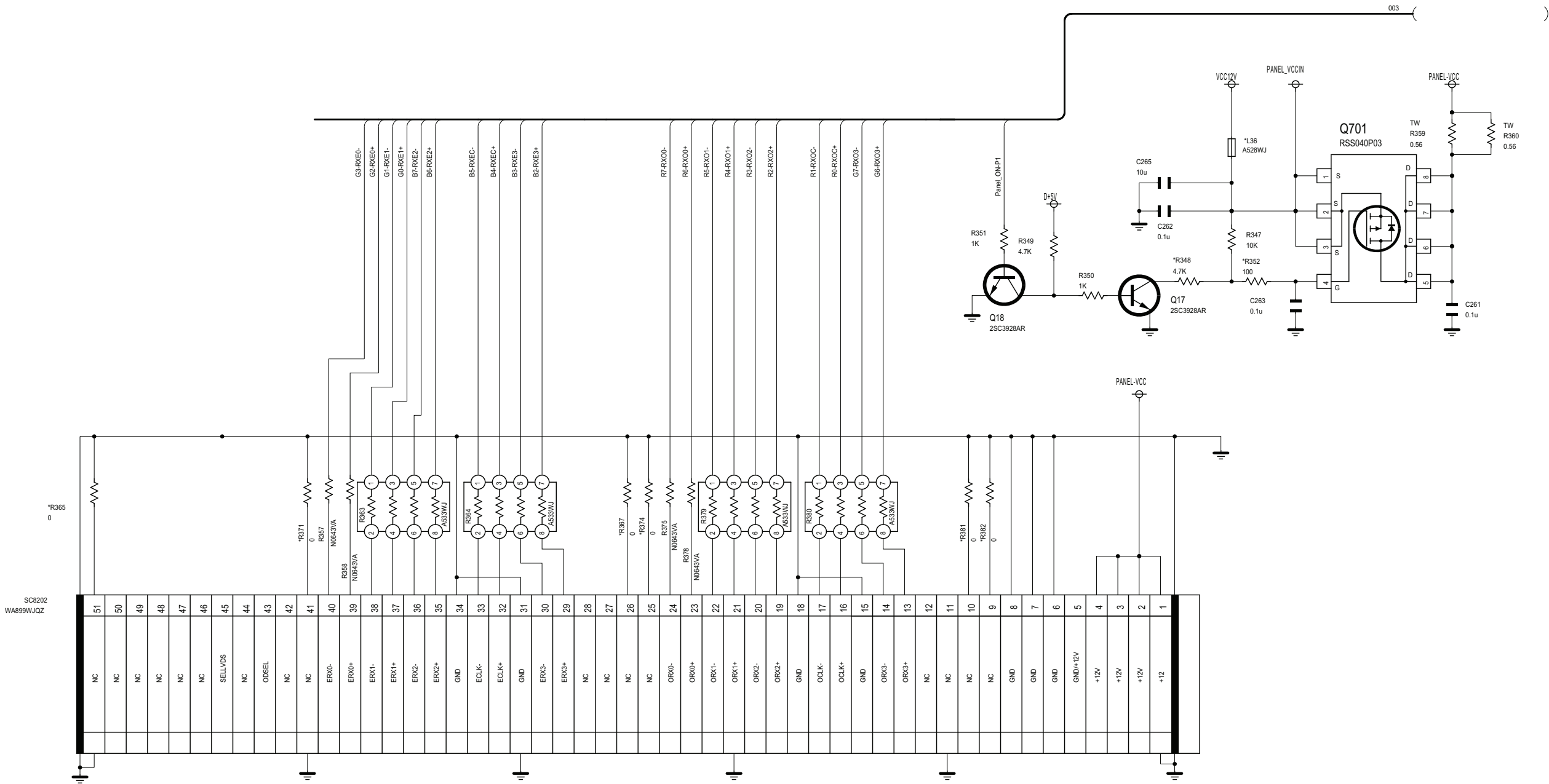


Main Unit Diagram 10/14 (PANEL INTERFACE)

DUNTKF639WE08 (LE225E)

DUNTKF639WE09 (LE225EB)

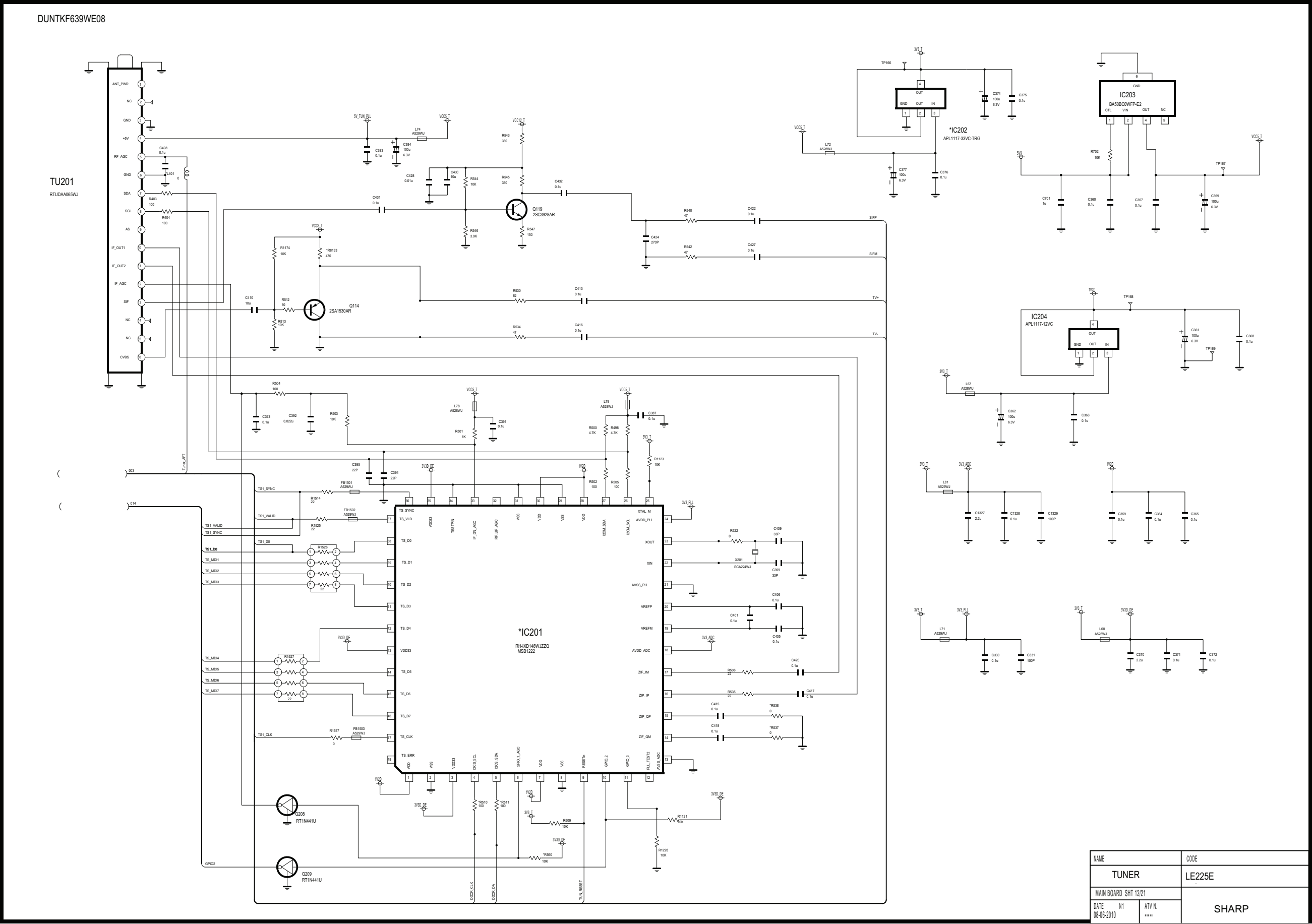
DUNTKF639WE08



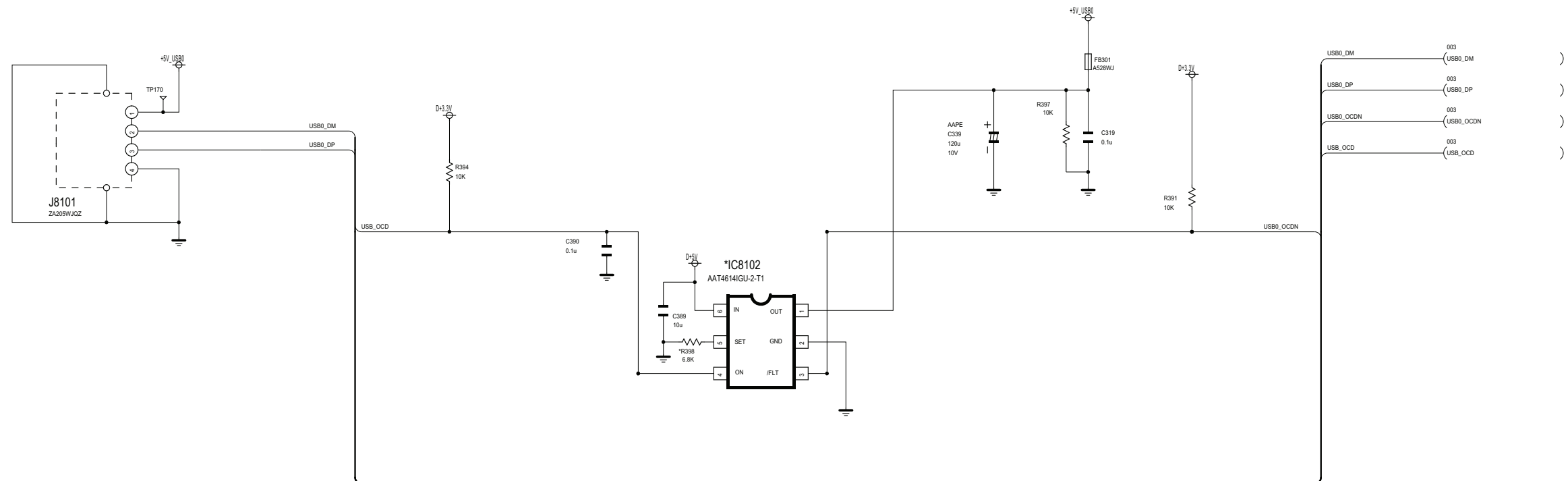
NAME		CODE
PANEL INTERFACE		LE225E
MAIN BOARD SHT11/17		SHARP
DATE N1	ATV N.	
14-10-2010		

Main Unit Diagram 11/14 (TUNER) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)

I  
H  
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D  
C  
B  
A

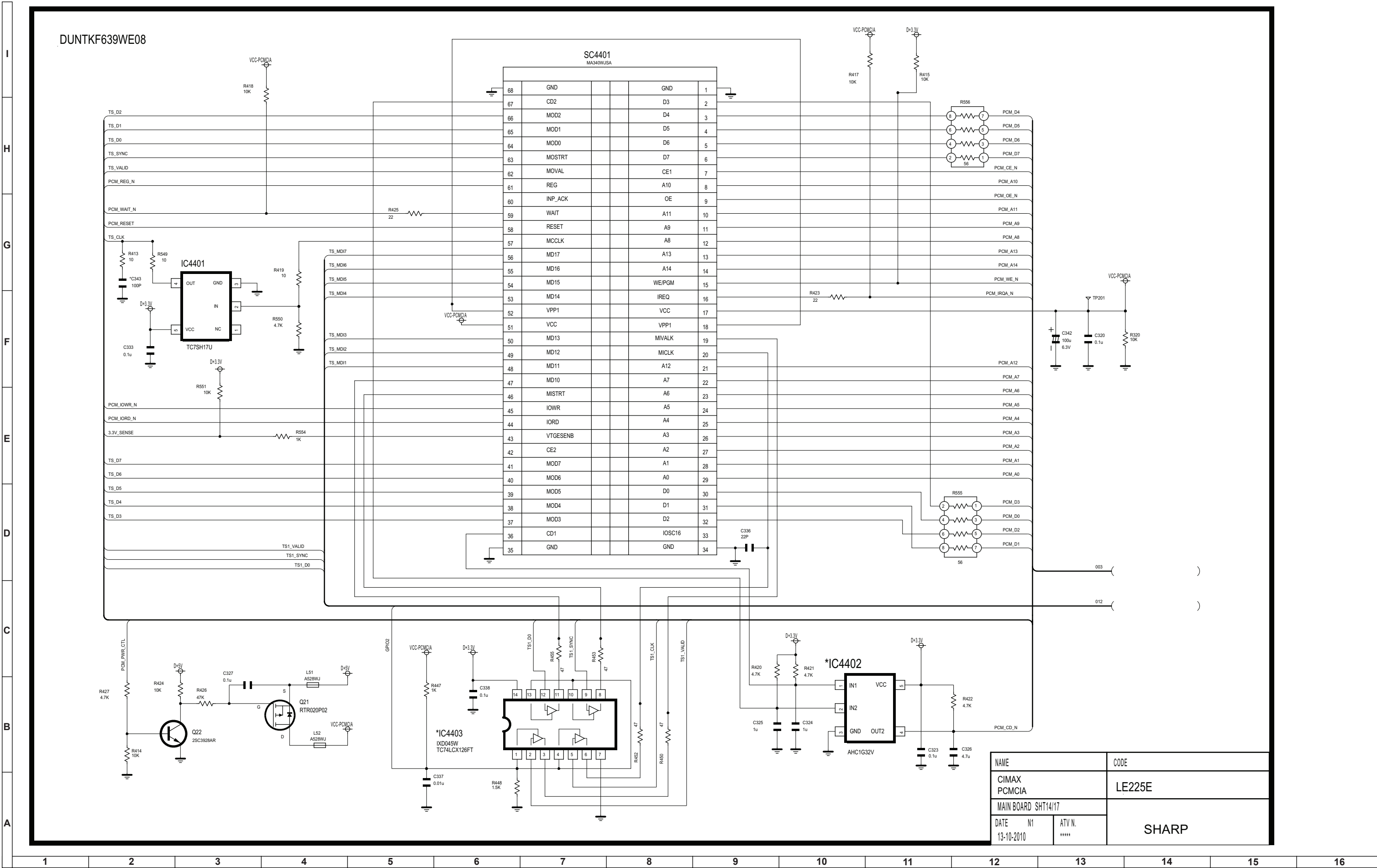


**Main Unit Diagram 12/14 (USB) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)**



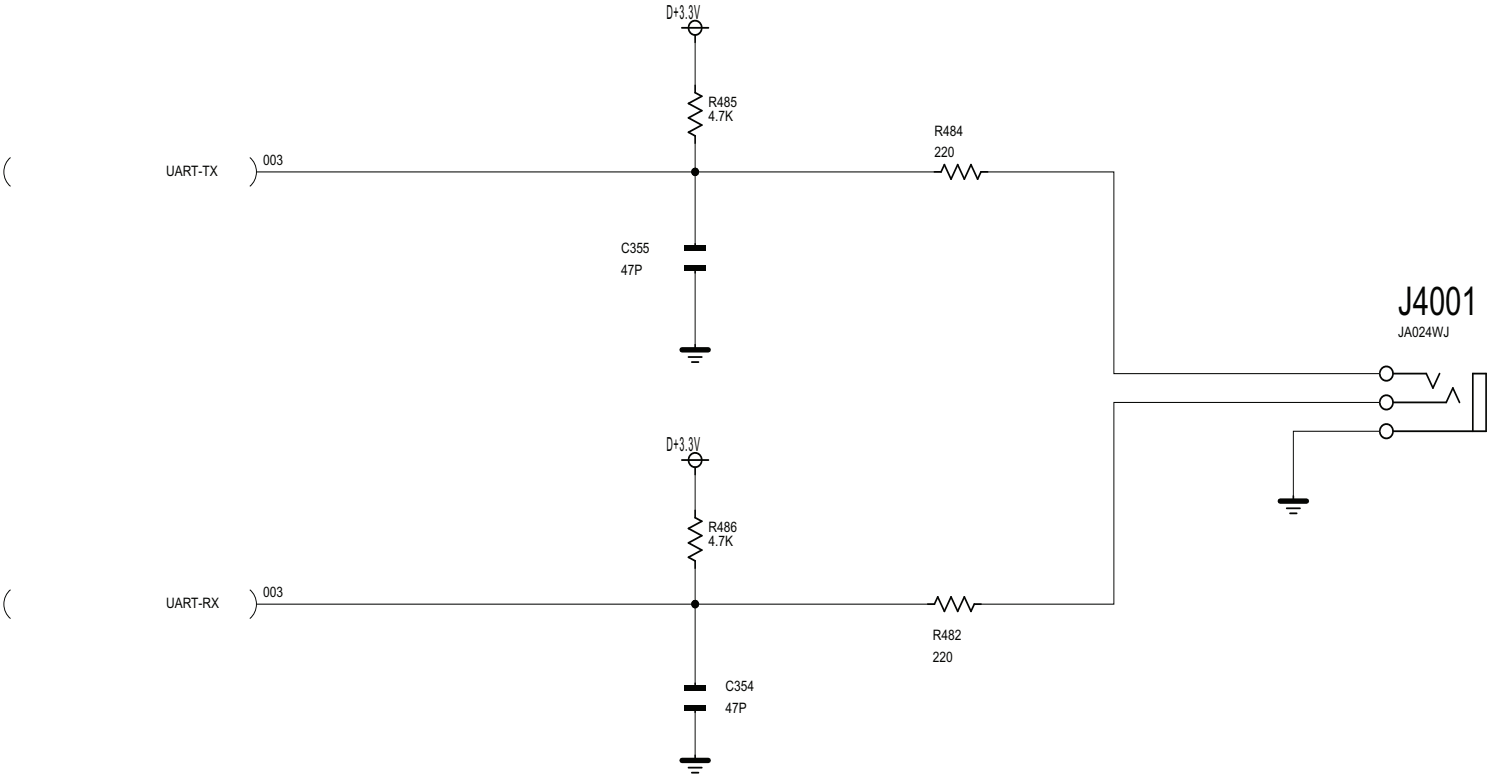
NAME		CODE
USB		LE225E
MAIN BOARD SHT13/17		SHARP
DATE N1 08-06-2010	KAV N.	

Main Unit Diagram 13/14 (PCMCIA) DUNTKF639WE08 (LE225E) DUNTKF639WE09 (LE225EB)



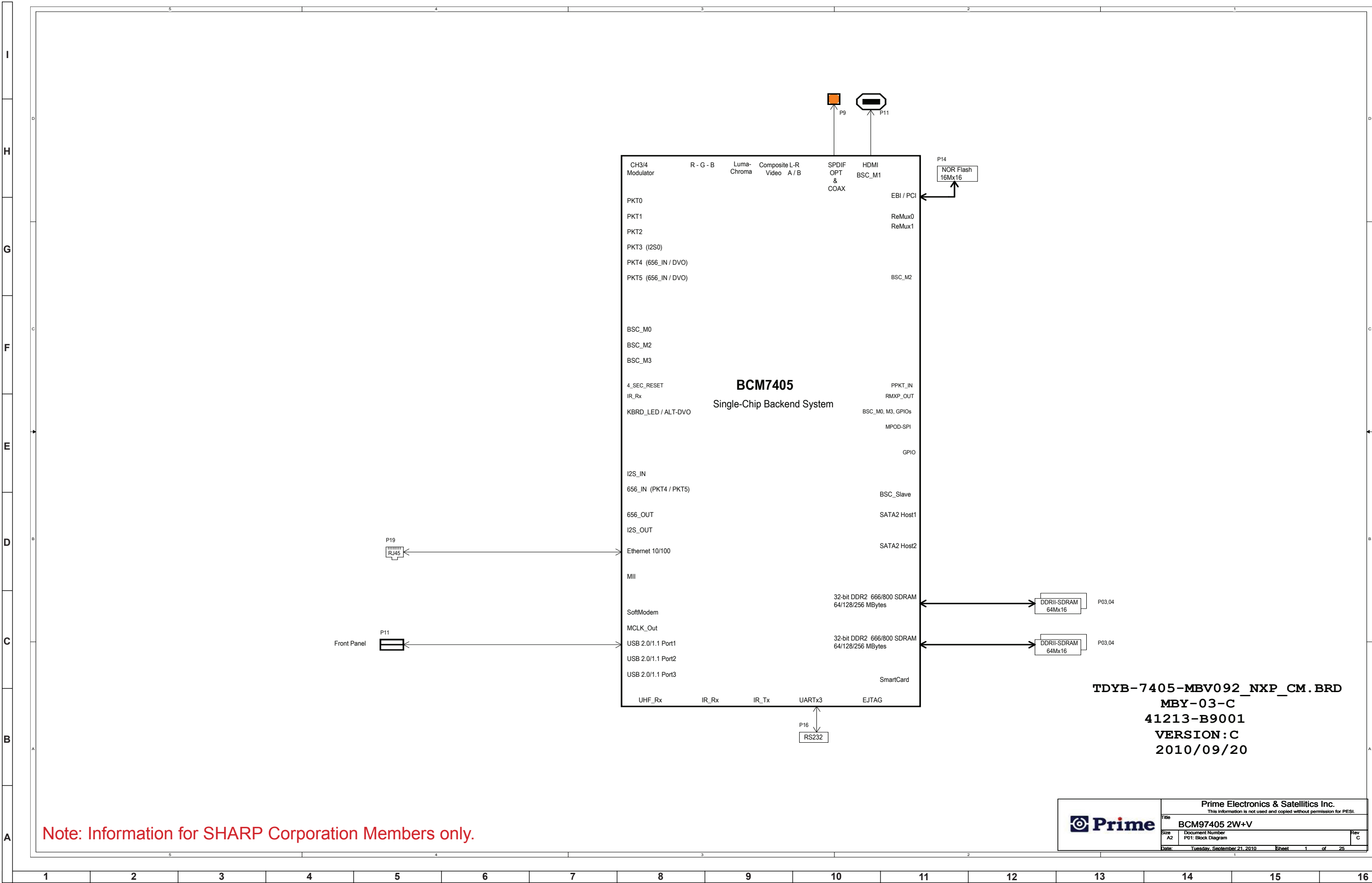
I  
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E  
D  
C  
B  
A

DUNTKF639WE08



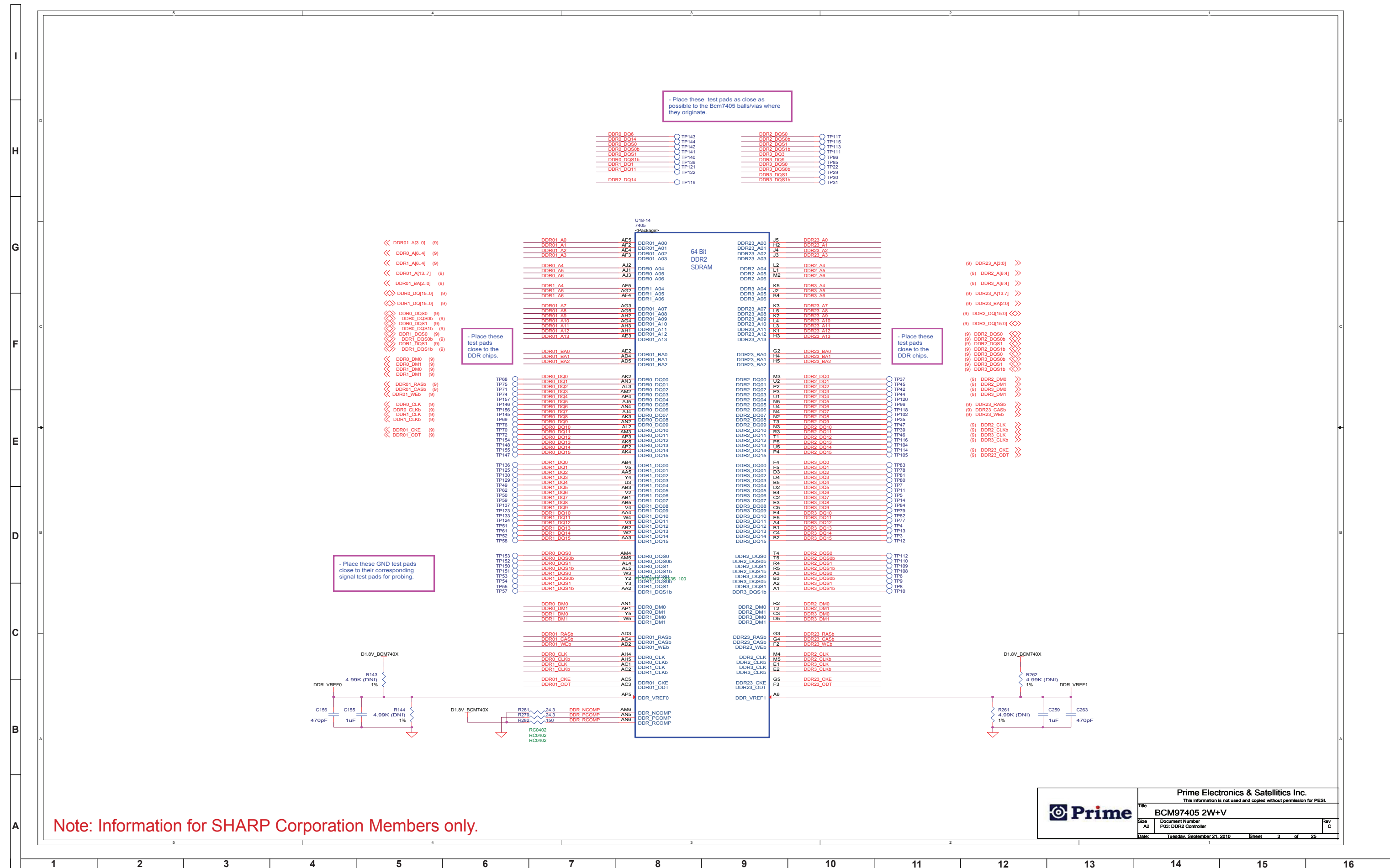
NAME		CODE
RS232		LE225E
MAIN BOARD SHT17/17		SHARP
DATE 19-05-2010	N1 KAV N.	

Connected TV Unit Diagram    RUNTKA757WJQZ    (1 / 22)    Block Diagram



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File BCM97405 2W+V		
Size A2	Document Number P01: Block Diagram	Rev C
Date: Tuesday, September 21, 2010    Sheet 1 of 25		

# Connected TV Unit Diagram RUNTKA757WJQZ (2 / 22) DDR2 Controller



Note: Information for SHARP Corporation Members only.



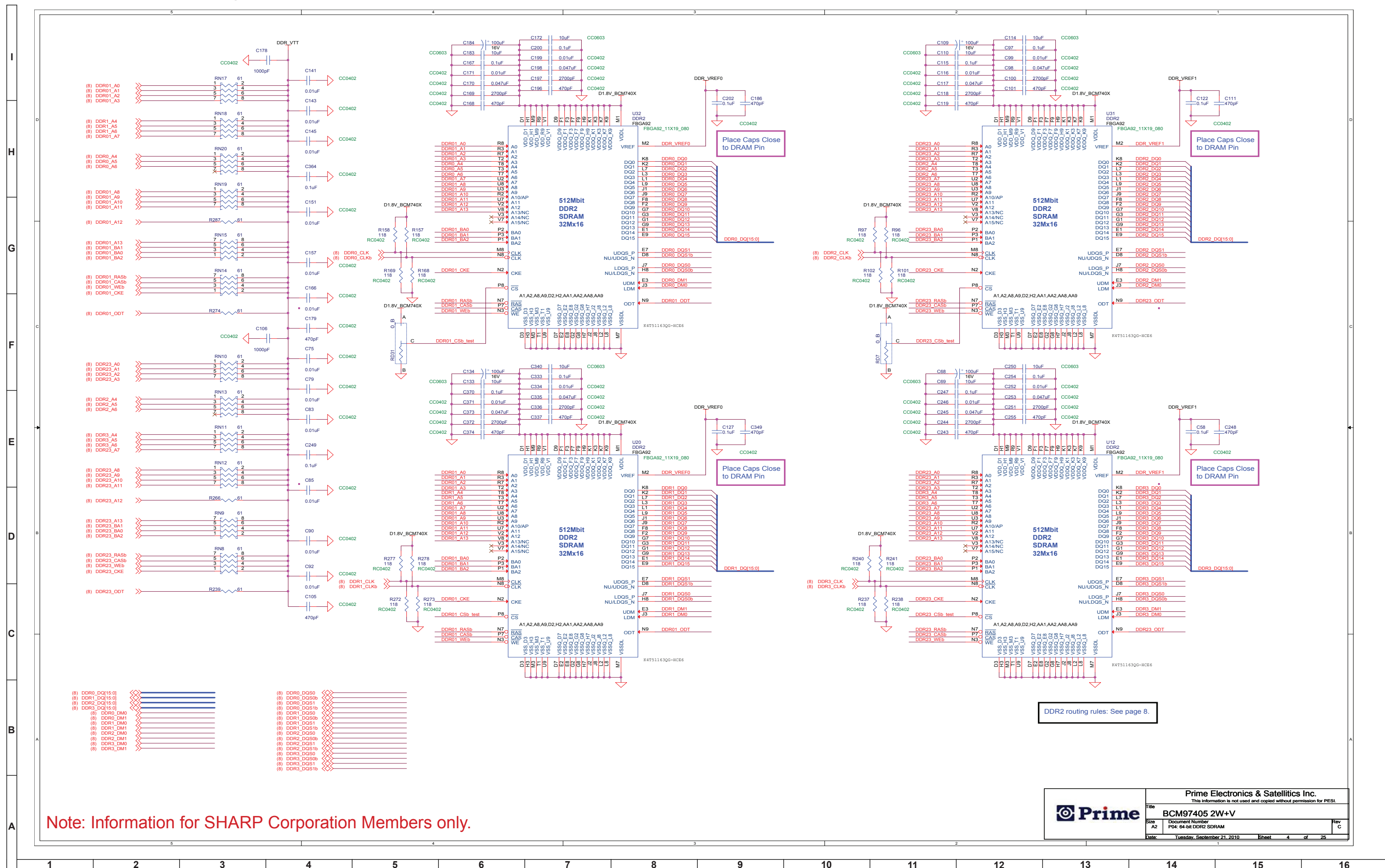
Prime Electronics & Satellitics Inc.

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File		BCM97405 2W+V	
Size	A2	Document Number	P03: DDR2 Controller
Date:	Tuesday, September 21, 2010	Sheet	3 of 25
Rev	C		



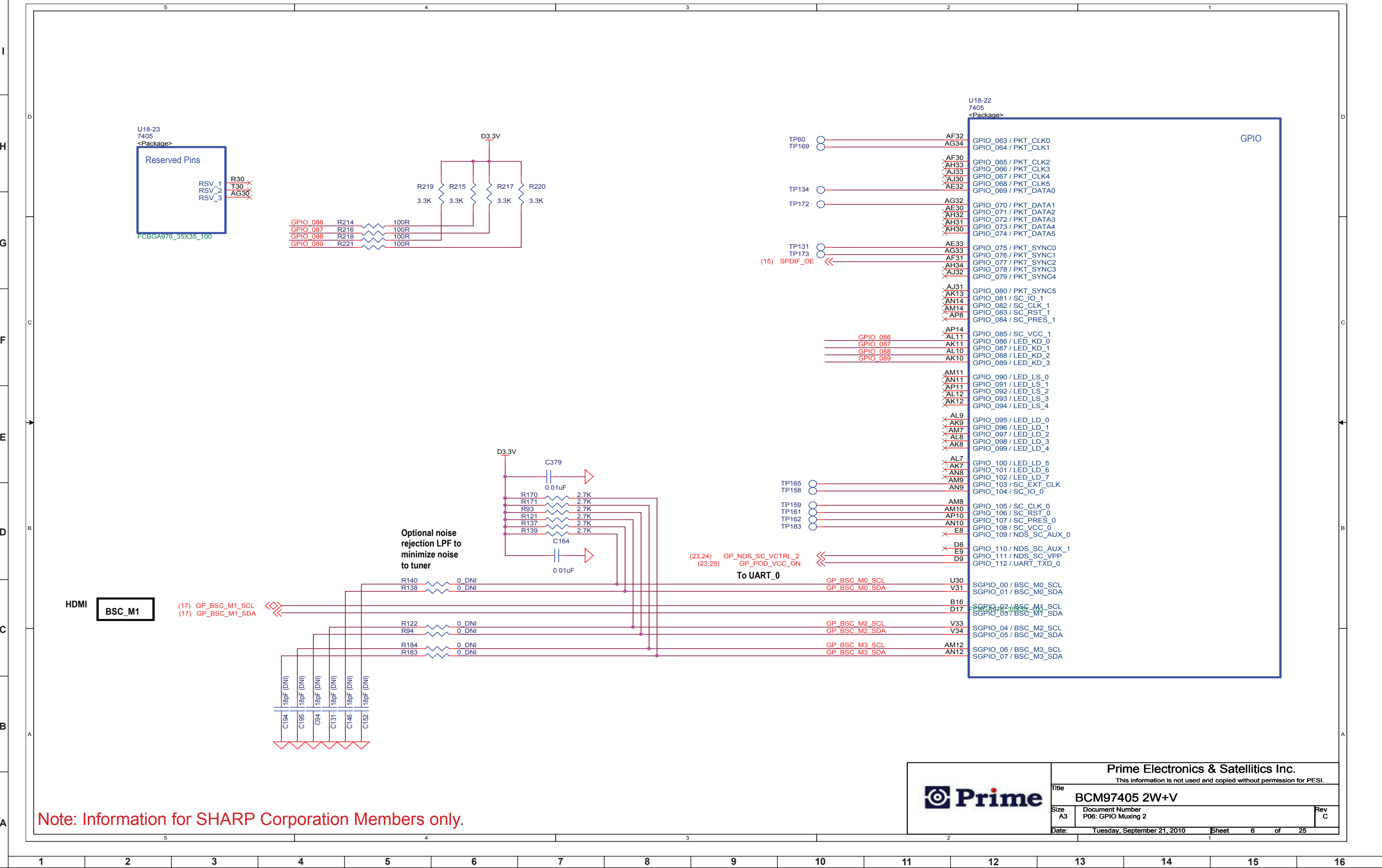
**Connected TV Unit Diagram**     **RUNTKA757WJQZ**     **(3 / 22)**     **64-bit DDR2 SDRAM**




Connected TV Unit Diagram    RUNTKA757WJQZ    (4 / 22)    GPIO Muxing 1



Connected TV Unit Diagram RUNTKA757WJQZ (5 / 22) GPIO Muxing 2



Note: Information for SHARP Corporation Members only.

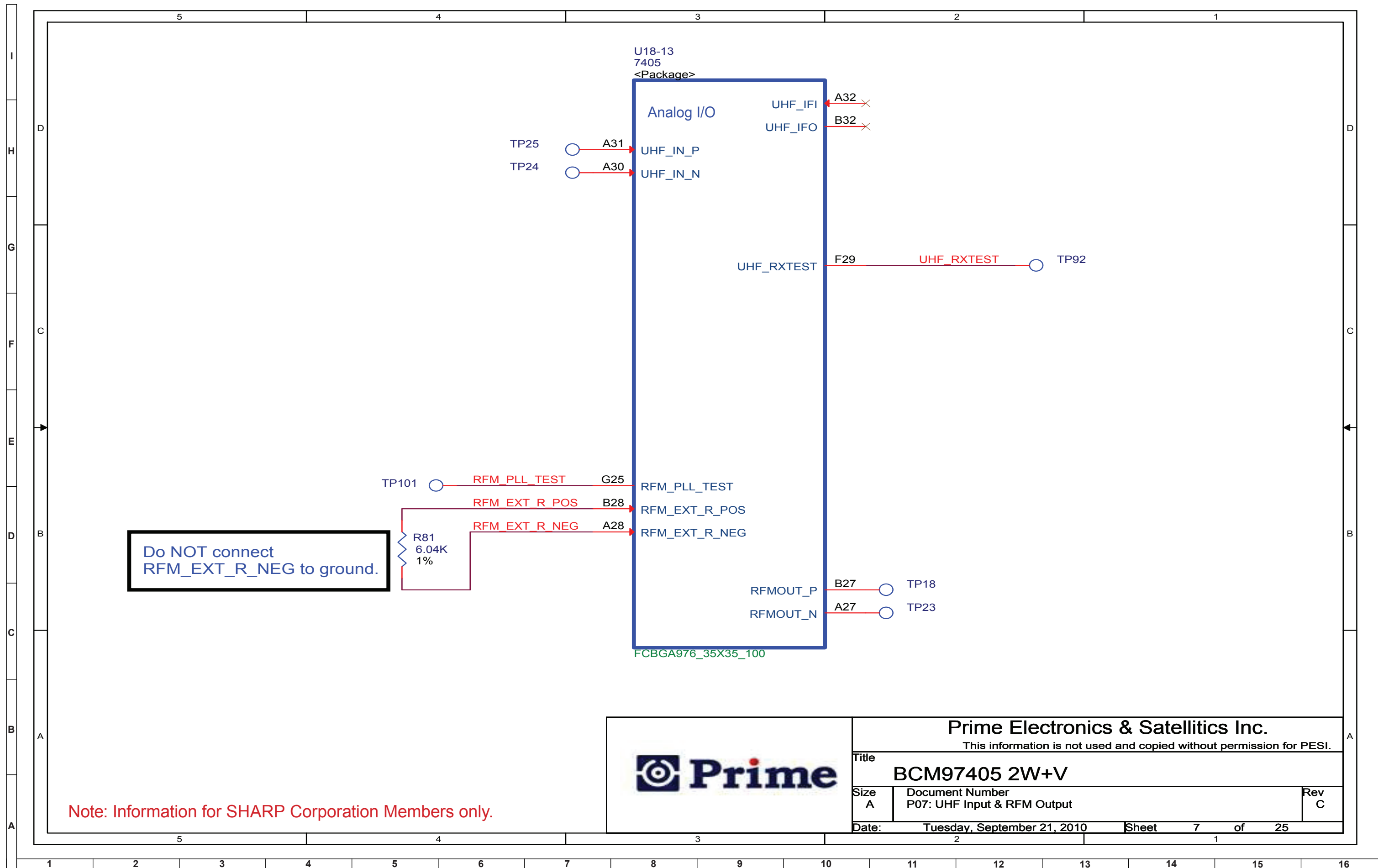


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Title		BCM97405 2W+V
Size	Document Number	Rev
A3	P06: GPIO Muxing 2	C
Date:	Tuesday, September 21, 2010	Sheet 6 of 25

## Connected TV Unit Diagram    RUNTKA757WJQZ    (6 / 22)    UHF Input &amp; RFM Output



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Title

BCM97405 2W+V

Size

A

Document Number

P07: UHF Input & RFM Output

Rev

C

Date:

Tuesday, September 21, 2010

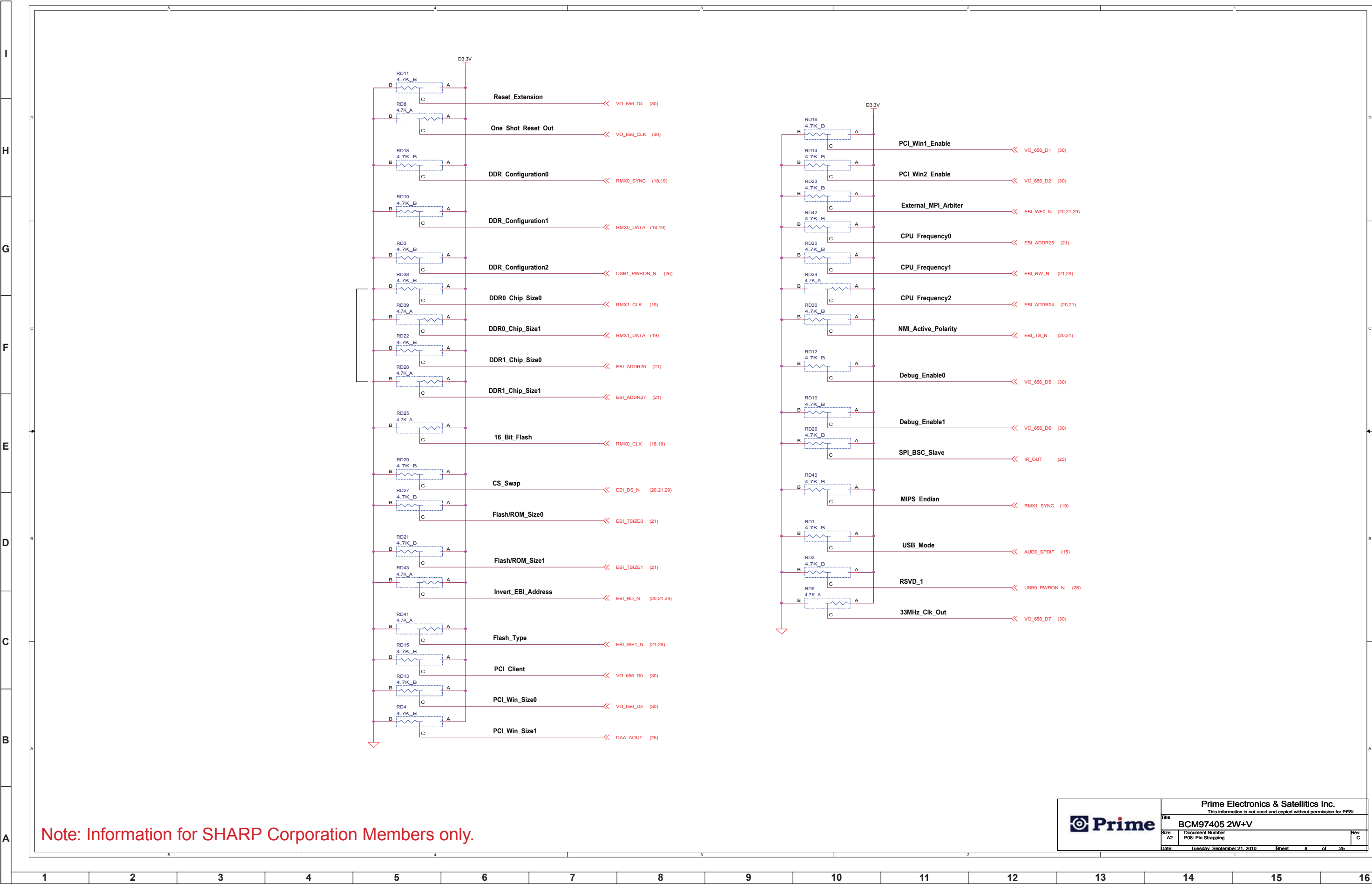
Sheet

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of

25

Connected TV Unit Diagram    RUNTKA757WJQZ    (7 / 22)    Pin Strapping



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Title	BCM97405 2W+V
Size	Document Number
A2	P08: Pin Strapping
Date	Tuesday, September 21, 2010
Sheet	8 of 25
Rev	C

## Connected TV Unit Diagram    RUNTKA757WJQZ    (8 / 22)    Analog &amp; Digital Audio

U18-9  
7405  
<Package>

## Analog Audio

AUD0\_LEFT\_p  
AUD0\_LEFT\_n  
  
AUD0\_RIGHT\_p  
AUD0\_RIGHT\_nA22  
B22Route as 100 Ohm  
differential pairsDIFF\_AUD0\_LEFT\_P  
DIFF\_AUD0\_LEFT\_N  
  
DIFF\_AUD0\_RIGHT\_P  
DIFF\_AUD0\_RIGHT\_N

## Digital Audio

AUD0\_SPDIF

C21

AUD0\_SPDIF

FCBGA976\_35X35\_100

I2S audio is found on Sheets 10, 11, 30.

Strap Bit

(13) AUD0\_SPDIF

[11] SPDIF\_OE

R159  
1K\_NCQ16  
PMBT3904\_NC

C137

0.47uF

C102  
56p

J12

JST\_B2B-PH-SM4-TB

J2308

j5hdr\_ps

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Title

BCM97405 2W+V

Size  
A4Document Number  
P09: Analog & Digital AudioRev  
C

Date:

Tuesday, September 21, 2010

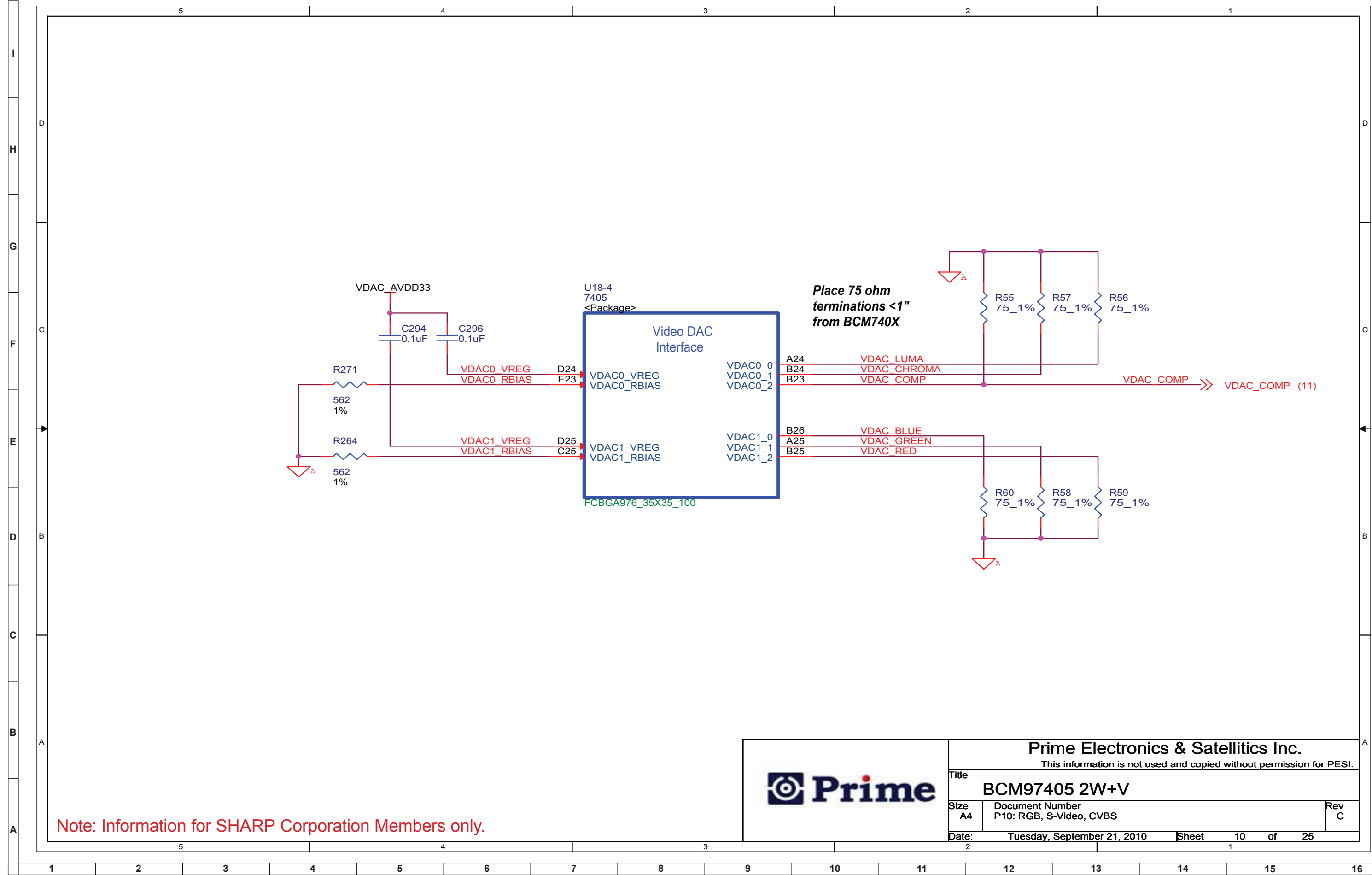
Sheet

9

of

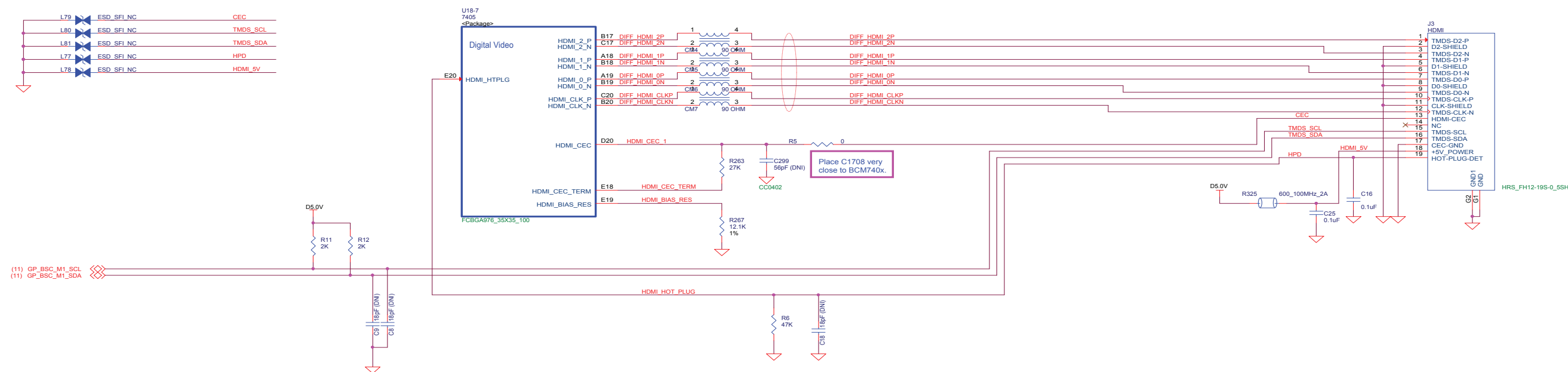
25

Connected TV Unit Diagram    RUNTKA757WJQZ    (9 / 22)    RGB, S-Video, CVBS





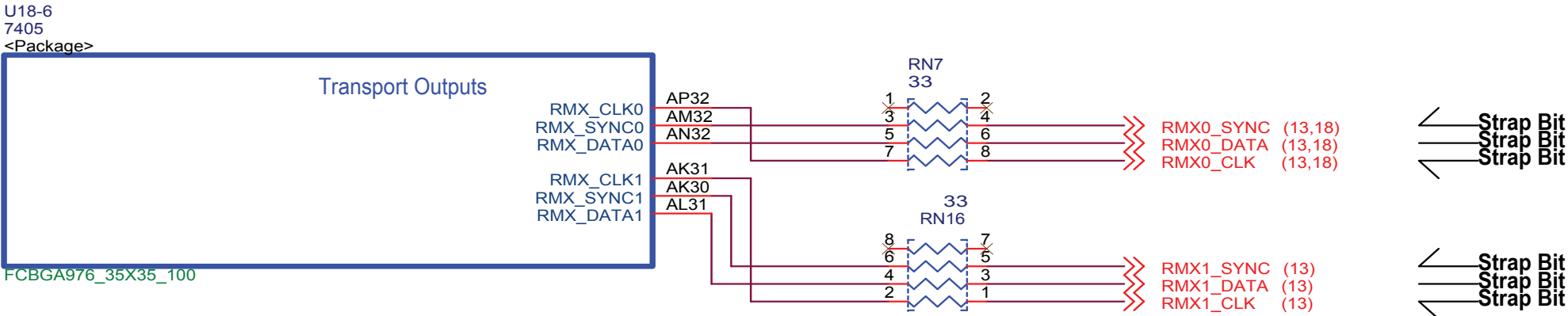
Connected TV Unit Diagram    RUNTKA757WJQZ    (10 / 22)    HDMI A/V, Front Panel



Note: Information for SHARP Corporation Members only.

		Prime Electronics & Satellitics Inc.	
		This information is not used and copied without permission for PESI.	
Title	BCM97405 2W+V	Document Number	P11: HDMI A/V, Front Panel
Size	A2	Date	Tuesday, September 21, 2010
Sheet	11	of	25
Rev	C		

Connected TV Unit Diagram    RUNTKA757WJQZ    (11 / 22)    PKT, RMX



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Title BCM97405 2W+V		
Size A4	Document Number P12: PKT, RMX	Rev C
Date: Tuesday, September 21, 2010	Sheet 12	of 25

# Connected TV Unit Diagram RUNTKA757WJQZ (12 / 22) PCI, Expansion Slots

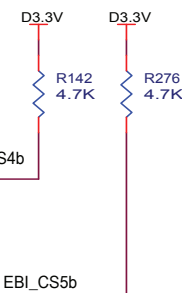
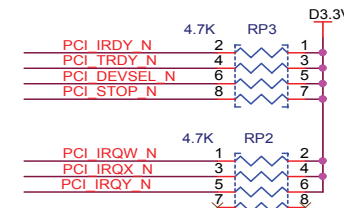
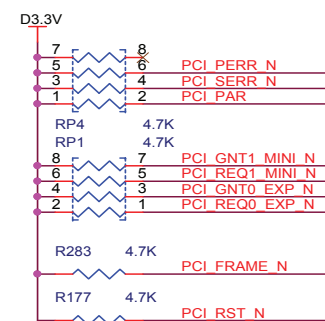
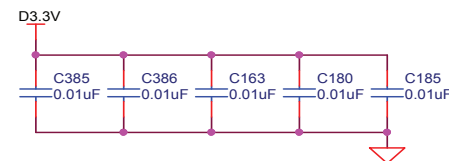
(18,21) PCI\_RST\_N  
(18,21) PCI\_AD[31:16]  
(18,21) PCI\_AD[15:0]  
(18,21) PCI\_CBE[3:0]  
(18,21) PCI\_PAR  
(18,21) PCI\_STOP\_N  
(18,21) PCI\_TRDY\_N  
(18) PCI\_FRAME\_N  
(18,21) PCI\_IRDY\_N  
(18,21) PCI\_DEVSEL\_N  
(18,21) PCI\_SERR\_N  
(18) PCI\_PERR\_N

U18-1  
7405  
<Package>

## PCI Bus/EBI

PCI_AD00 / EBI_DATA0	AP20	PCI AD0	Ext TP In 32
PCI_AD01 / EBI_DATA1	AM19	PCI AD1	Ext TP In 33
PCI_AD02 / EBI_DATA2	AN20	PCI AD2	Ext TP In 34
PCI_AD03 / EBI_DATA3	AM20	PCI AD3	Ext TP In 35
PCI_AD04 / EBI_DATA4	AN21	PCI AD4	Ext TP In 36
PCI_AD05 / EBI_DATA5	AN21	PCI AD5	Ext TP In 37
PCI_AD06 / EBI_DATA6	AN22	PCI AD6	Ext TP In 38
PCI_AD07 / EBI_DATA7	AK19	PCI AD7	Ext TP In 39
PCI_AD08 / EBI_DATA8	AL19	PCI AD8	Ext TP In 40
PCI_AD09 / EBI_DATA9	AL20	PCI AD9	Ext TP In 41
PCI_AD10 / EBI_DATA10	AK21	PCI AD10	Ext TP In 42
PCI_AD11 / EBI_DATA11	AK22	PCI AD11	Ext TP In 43
PCI_AD12 / EBI_DATA12	AL21	PCI AD12	Ext TP In 44
PCI_AD13 / EBI_DATA13	AL22	PCI AD13	Ext TP In 45
PCI_AD14 / EBI_DATA14	AM22	PCI AD14	Ext TP In 46
PCI_AD15 / EBI_DATA15	AN23	PCI AD15	Ext TP In 47
PCI_AD16 / EBI_ADDR0	AP26	PCI AD16	Ext TP In 48
PCI_AD17 / EBI_ADDR1	AM26	PCI AD17	Ext TP In 49
PCI_AD18 / EBI_ADDR2	AM26	PCI AD18	Ext TP In 50
PCI_AD19 / EBI_ADDR3	AN27	PCI AD19	Ext TP In 51
PCI_AD20 / EBI_ADDR4	AN28	PCI AD20	Ext TP In 52
PCI_AD21 / EBI_ADDR5	AM27	PCI AD21	Ext TP In 53
PCI_AD22 / EBI_ADDR6	AK26	PCI AD22	Ext TP In 54
PCI_AD23 / EBI_ADDR7	AL25	PCI AD23	Ext TP In 55
PCI_AD24 / EBI_ADDR8	AL26	PCI AD24	Ext TP In 56
PCI_AD25 / EBI_ADDR9	AK27	PCI AD25	Ext TP In 57
PCI_AD26 / EBI_ADDR10	AL27	PCI AD26	Ext TP OUT 42
PCI_AD27 / EBI_ADDR11	AP28	PCI AD27	Ext TP In 59
PCI_AD28 / EBI_ADDR12	AM28	PCI AD28	Ext TP In 60
PCI_AD29 / EBI_ADDR13	AP29	PCI AD29	Ext TP In 61
PCI_AD30 / EBI_ADDR14	AM29	PCI AD30	Ext TP In 62
PCI_AD31 / EBI_ADDR15	AN29	PCI AD31	Ext TP In 63
PCI_CBE00 / EBI_ADDR16	AK20	PCI CBE0	
PCI_CBE01 / EBI_ADDR17	AM23	PCI CBE1	
PCI_CBE02 / EBI_ADDR18	AM25	PCI CBE2	
PCI_CBE03 / EBI_ADDR19	AK26	PCI CBE3	
PCI_PAR / EBI_ADDR20	AN24	PCI PAR	
PCI_FRAMEb / EBI_TAB	AL24	PCI FRAME_N	
PCI_TRDYb / EBI_TAB	AL23	PCI TRDY_N	
PCI_IRDYb / EBI_ADDR21	AK24	PCI IRDY_N	
PCI_STOPb / EBI_ADDR22	AN25	PCI STOP_N	
PCI_DEVSELb / EBI_ADDR23	AP25	PCI DEVSEL_N	
PCI_CLK_IN	AL28	PCI_CLK (22)	
PCI_PERRb / EBI_TEAb	AM24	PCI PERR_N	
PCI_SERRb / EBI_TEAb	AK23	PCI SERR_N	
PCI_RSTb	AN30	PCI RST_N	
PCI_INT_A0	AM31	PCI IRQW_N	
PCI_INT_A1	AP31	PCI IRQX_N	
PCI_INT_A2	AN31	PCI IRQY_N	
PCI_REQ0b	AK29	R141 0	PCI REQ0 EXP_N
PCI_REQ1b	AM30	R155 0	PCI REQ1 MINI_N
PCI_GNT0b	AL29	R145 0	PCI GNT0 EXP_N
PCI_GNT1b	AL30	R156 0	PCI GNT1 MINI_N
PCI_REQ2b / EBI_CS4b	AP19	PCI REQ2_1394_N	
PCI_GNT2b / EBI_CS5b	AK28	PCI GNT2_1394_N	

FCBGA976\_35X35\_100



Note: Information for SHARP Corporation Members only.

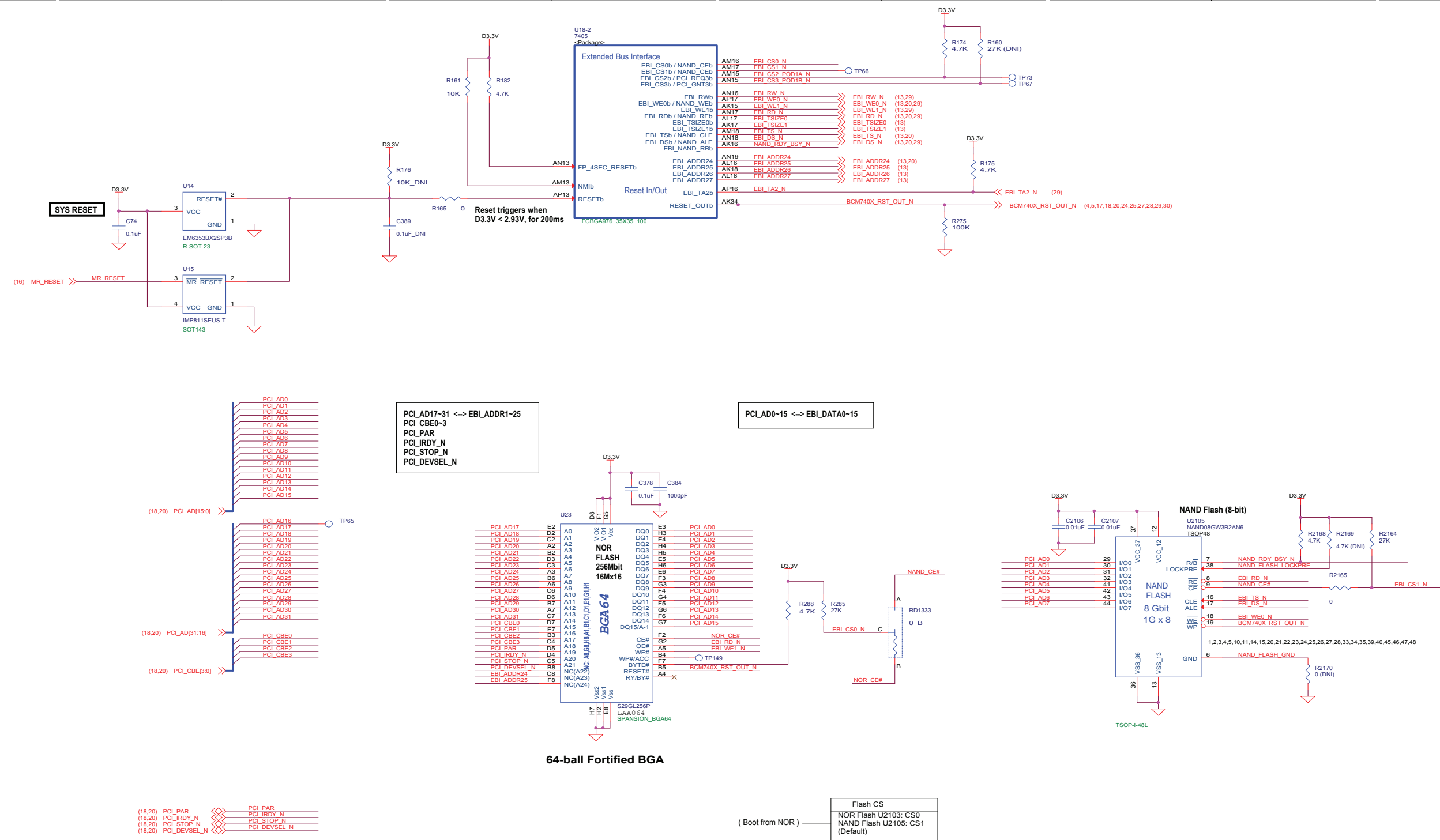


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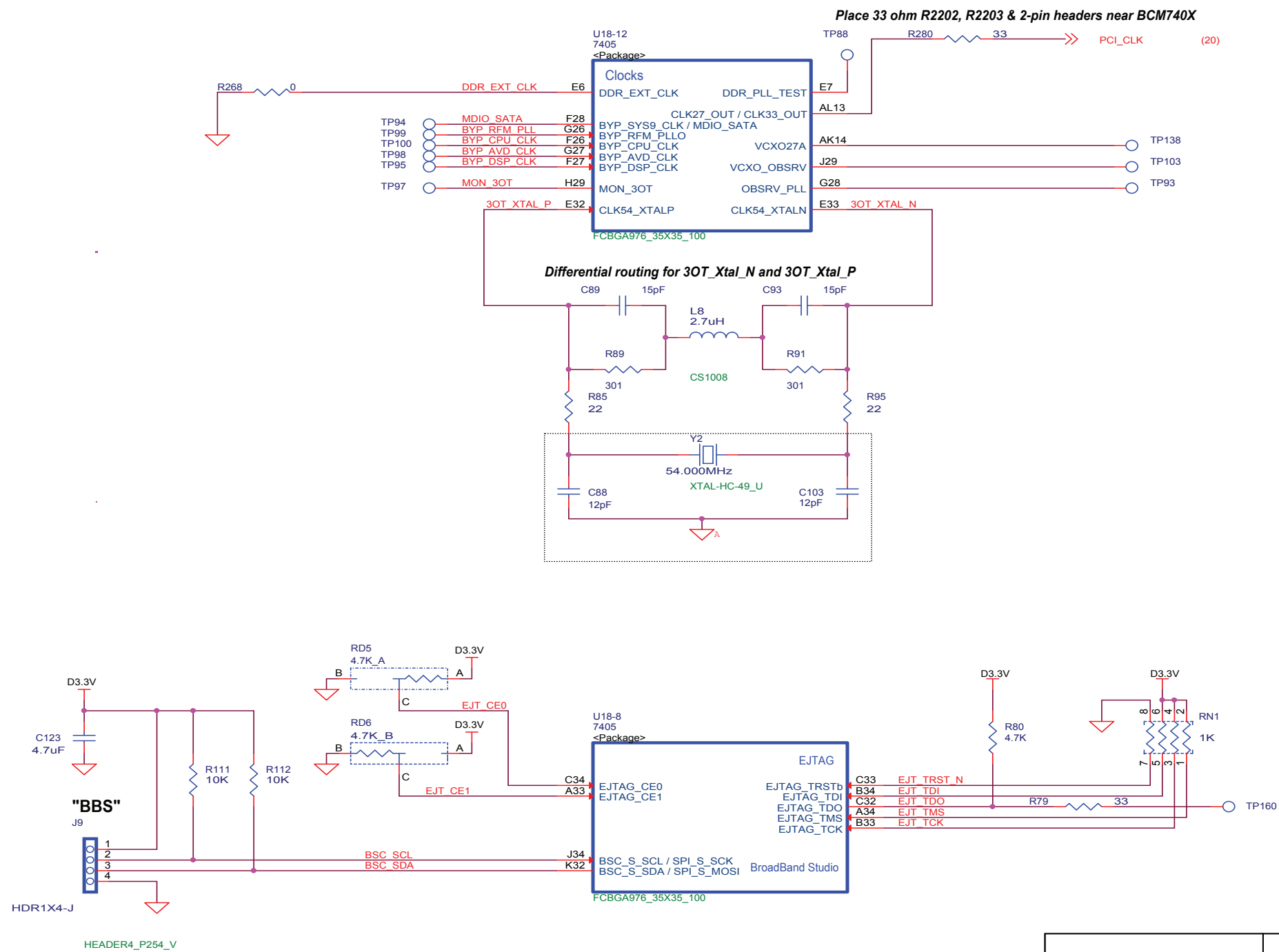
Title	BCM97405 2W+V		
Size	Document Number	Rev	
A3	P13: PCI, Expansion Slots	C	
Date:	Tuesday, September 21, 2010	Sheet	13 of 25

## Connected TV Unit Diagram    RUNTKA757WJQZ (13 / 22) EBI, Flash, Reset



Note: Information for SHARP Corporation Members only.

# Connected TV Unit Diagram    RUNTKA757WJQZ    (14 / 22)    CLKs, JTAG, BBS-BSC



Prime Electronics & Satellitics Inc.

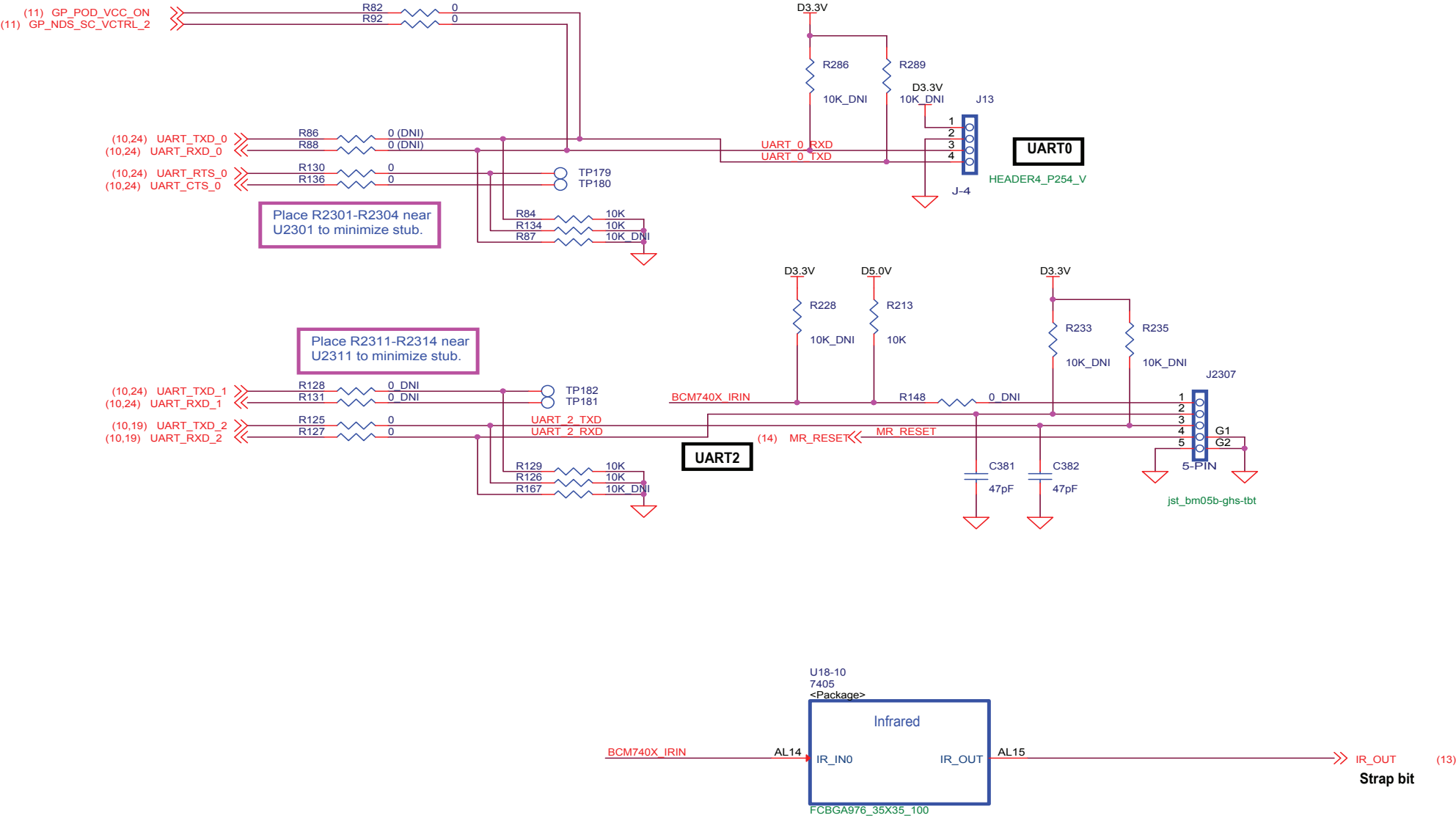
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BCM97405 2W+V

Size A3 Document Number P15: CLKs, JTAG, BBS-BSC

Date: Tuesday, September 21, 2010 Sheet 15 of 25

Connected TV Unit Diagram    RUNTKA757WJQZ    (15 / 22)    UART, IR-Tx, IR-Rx

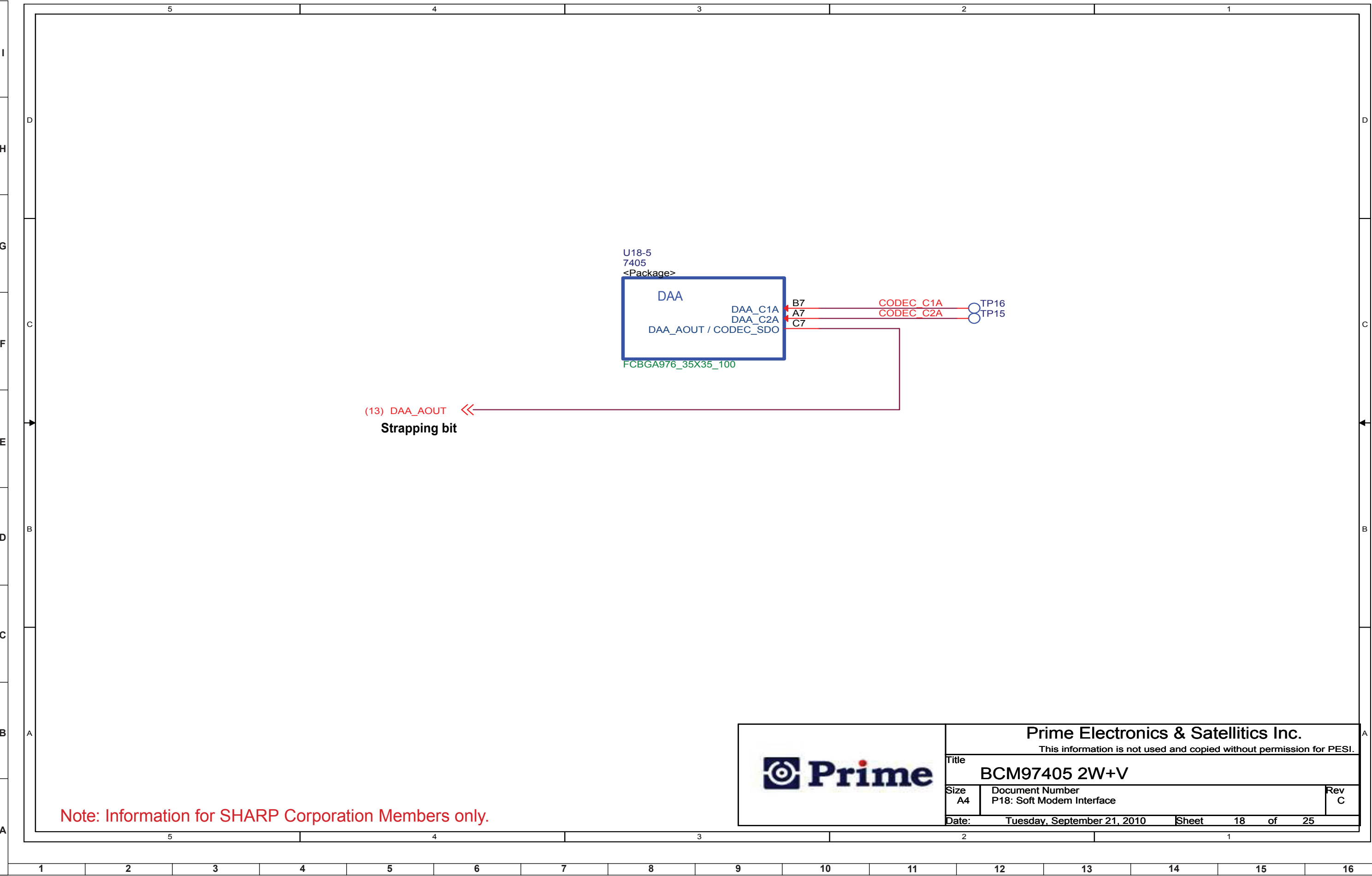


Note: Information for SHARP Corporation Members only.




Prime Electronics & Satellitics Inc. This information is not used and copied without permission for PESI.		
Title	BCM97405 2W+V	
Size	Document Number	Rev
A3	P16: UART, IR-Tx, IR-Rx	C
Date:	Tuesday, September 21, 2010	Sheet 16 of 25

Connected TV Unit Diagram    RUNTKA757WJQZ    (16 / 22)    Soft Modem Interface

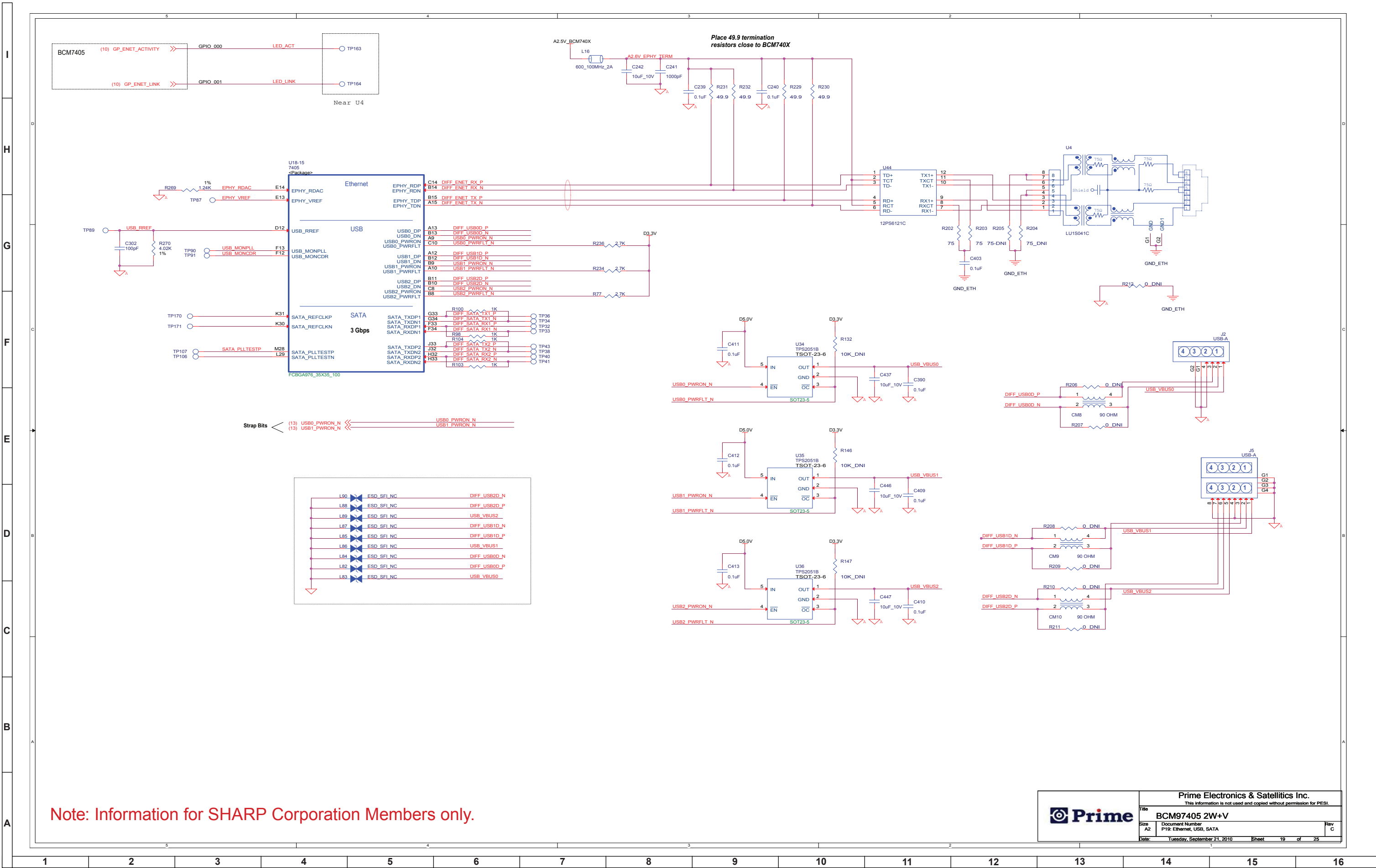


Note: Information for SHARP Corporation Members only.

		Prime Electronics & Satellitics Inc.	
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Title		BCM97405 2W+V	
Size A4	Document Number P18: Soft Modem Interface		Rev C
Date:		Tuesday, September 21, 2010	Sheet 18 of 25

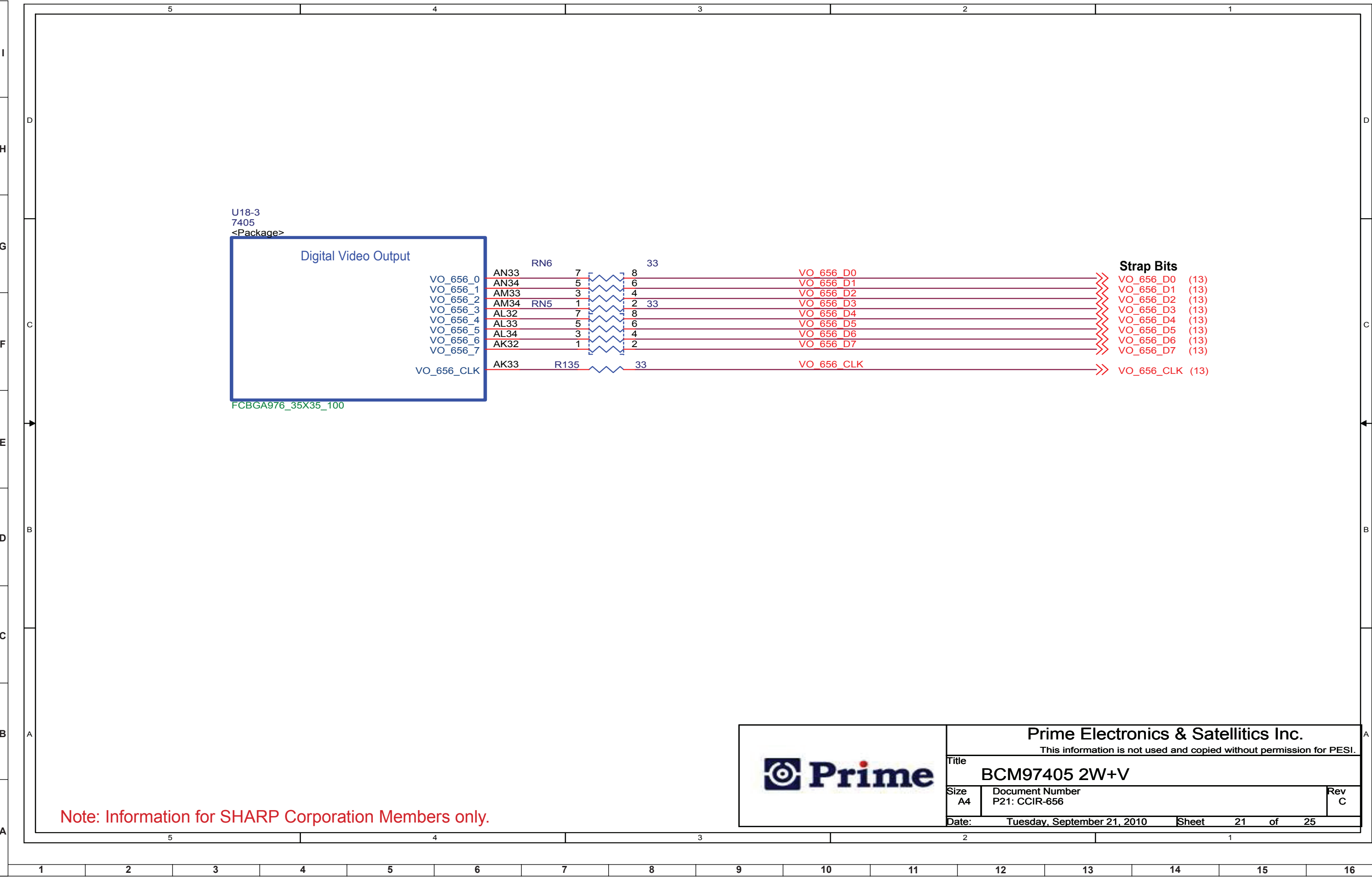


Connected TV Unit Diagram    RUNTKA757WJQZ    (17 / 22)    Ethernet, USB, SATA




Note: Information for SHARP Corporation Members only.

Connected TV Unit Diagram    RUNTKA757WJQZ    (18 / 22)    CCIR-656



Note: Information for SHARP Corporation Members only.



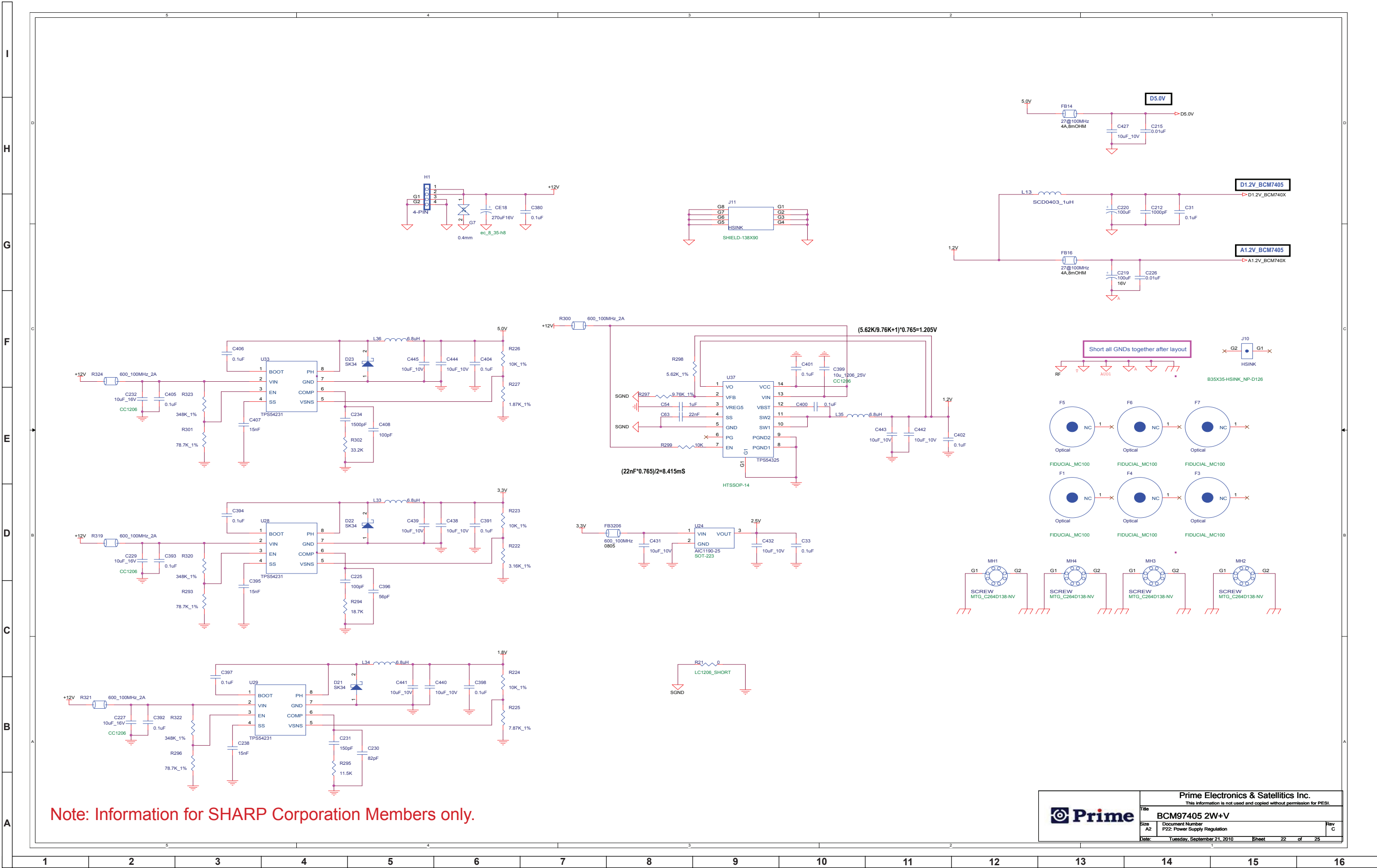
**Prime Electronics & Satellitics Inc.**  
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Title  
**BCM97405 2W+V**

Size A4	Document Number P21: CCIR-656	Rev C
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Date: Tuesday, September 21, 2010    Sheet 21 of 25

Connected TV Unit Diagram    RUNTKA757WJQZ    (19 / 22)    Power Supply Regulation

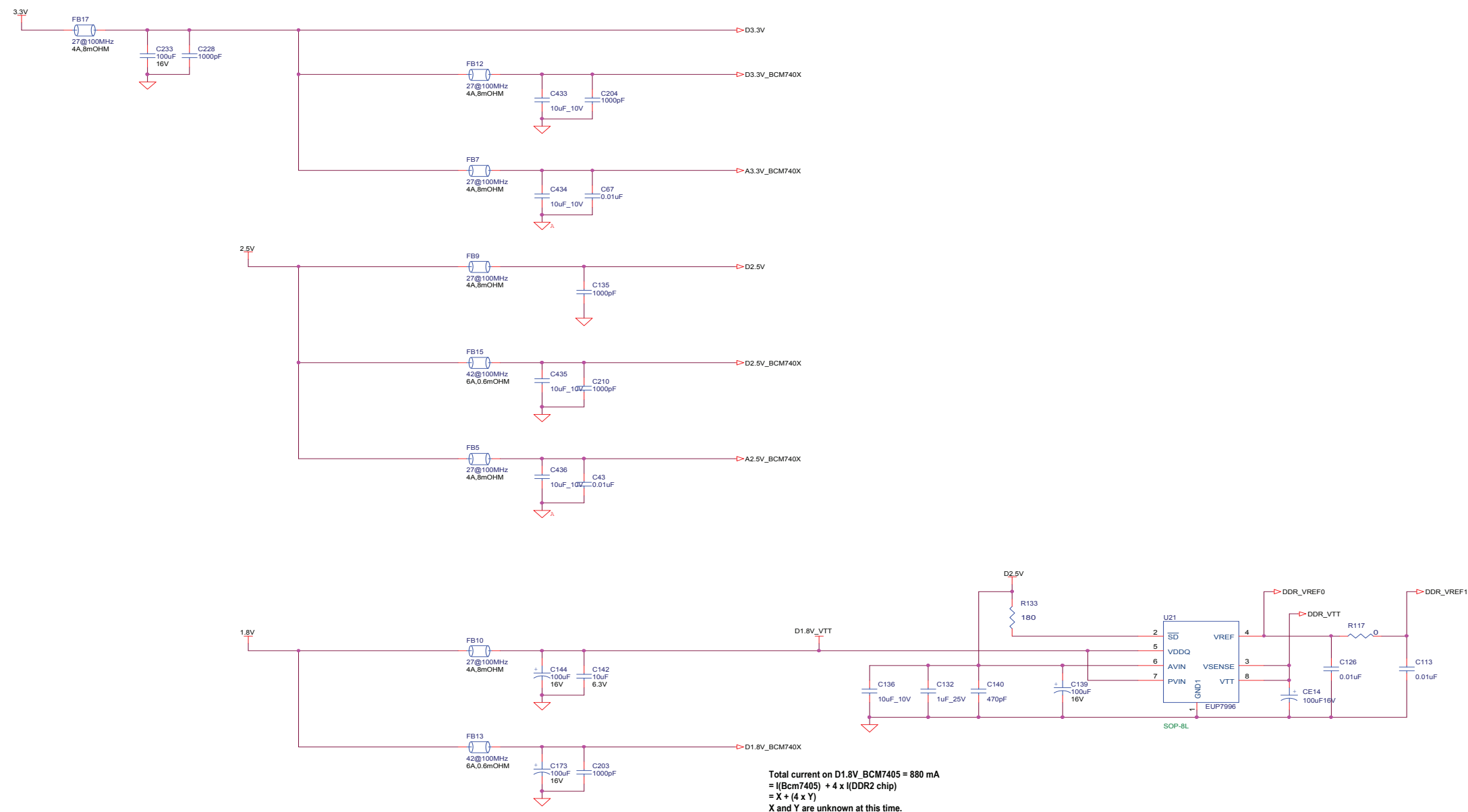


Note: Information for SHARP Corporation Members only.

Prime Electronics & Satellites Inc.  
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Title	BCM97405 2W+V	Rev	C
Size	A2	Document Number	P22: Power Supply Regulation
Date:	Tuesday, September 21, 2010	Sheet	22 of 25

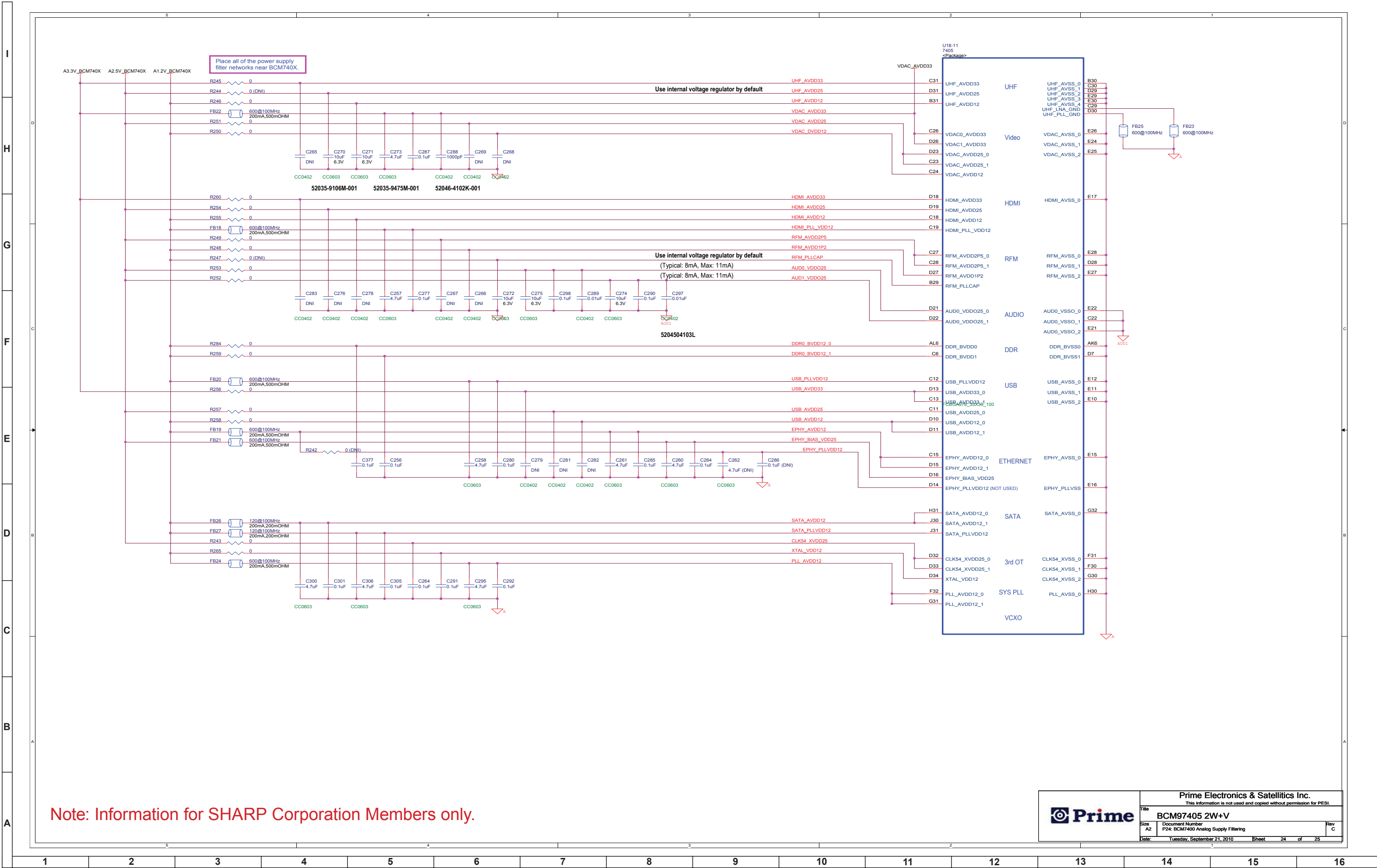
# Connected TV Unit Diagram RUNTKA757WJQZ (20 / 22) Power Supply Regulation



Note: Information for SHARP Corporation Members only.

		Prime Electronics & Satellitics Inc.	
		This information is not used and copied without permission for PESI.	
Title	BCM97405 2W+V	Document Number	P23: Power Supply Regulation
Size	A2	Date	Tuesday, September 21, 2010
Sheet	23	of	25
Rev	C		

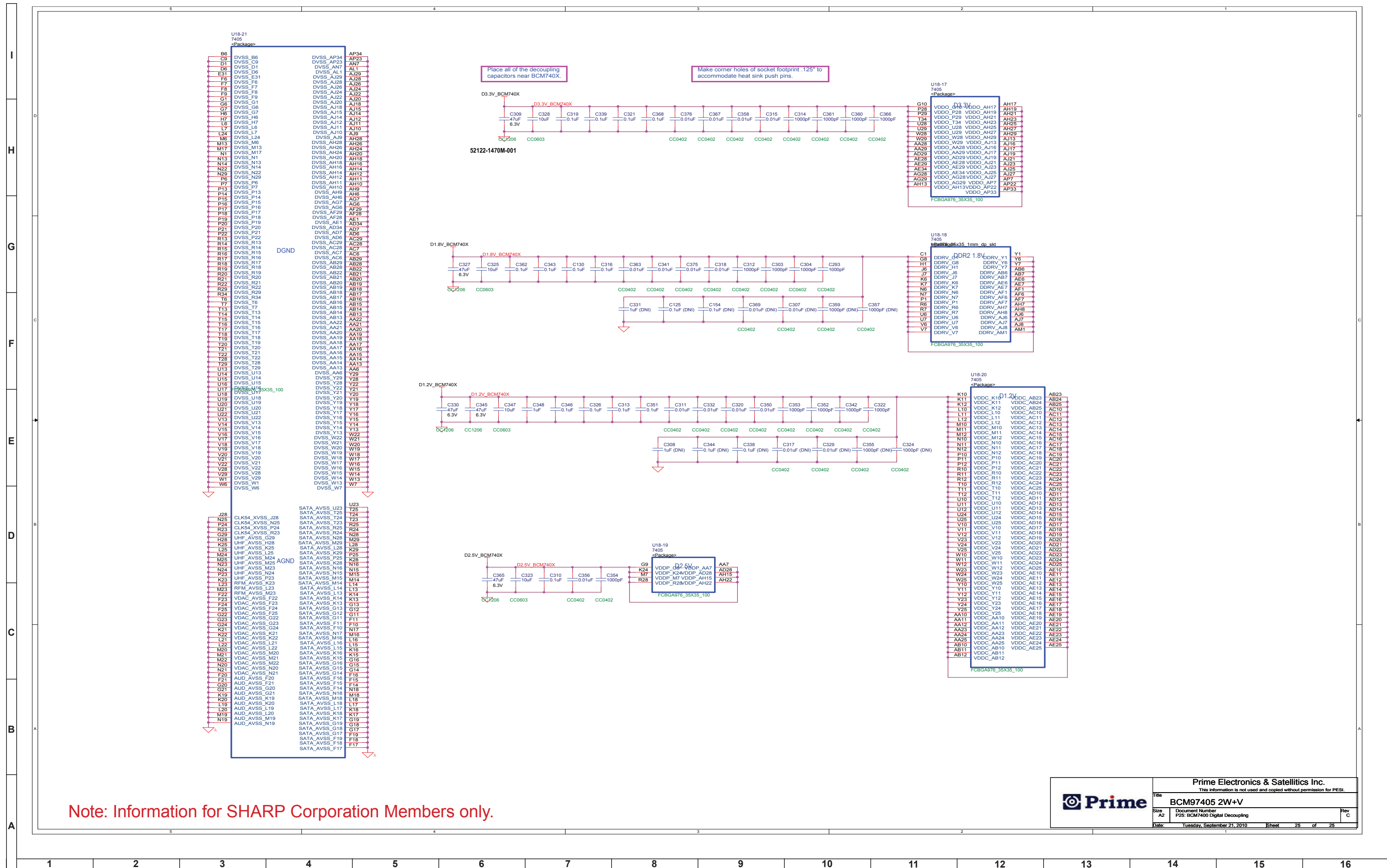
Connected TV Unit Diagram    RUNTKA757WJQZ    (21 / 22)    BCM7400 Analog Supply Filtering



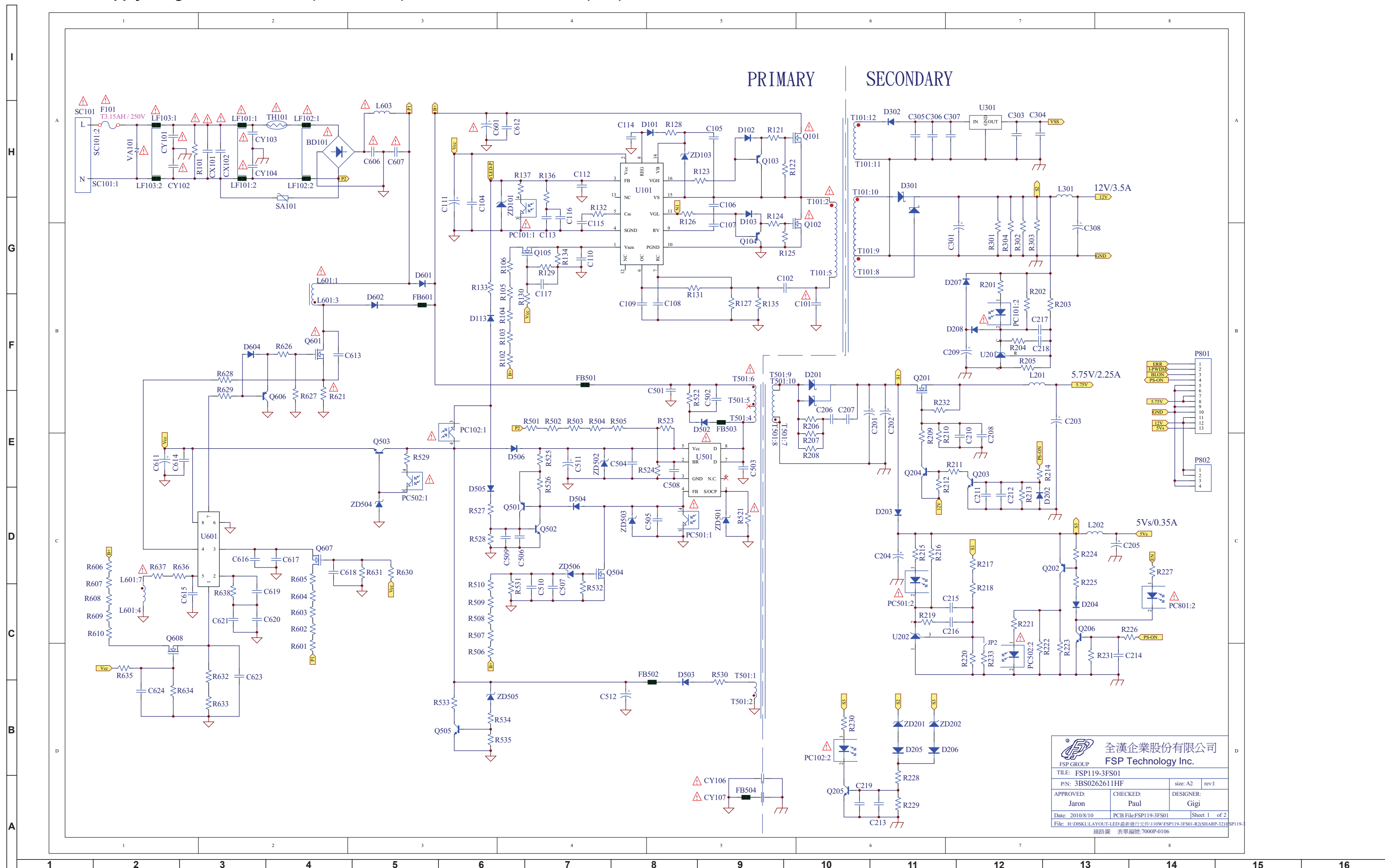
Note: Information for SHARP Corporation Members only.

Prime Electronics & Satelitics Inc.		
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Title	BCM97405 2W+V	
Size	Document Number	Rev
A2	P24: BCM7400 Analog Supply Filtering	C
Date:	Tuesday, September 21, 2010	Sheet 24 of 25

# Connected TV Unit Diagram RUNTKA757WJQZ (22 / 22) BCM7400 Digital Decoupling

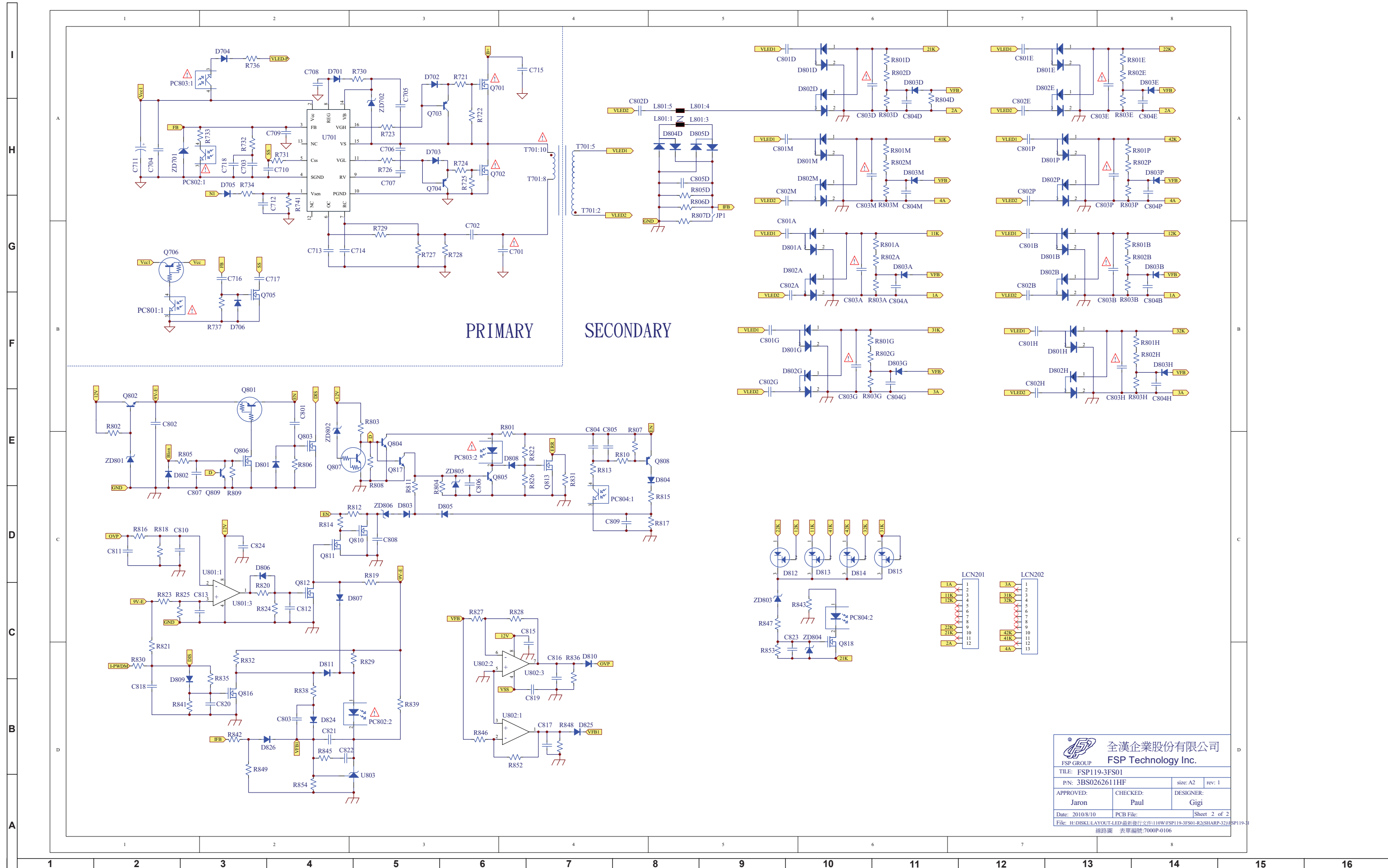


Power Supply Diagram LC32LE225E (AUO PANEL) RDENCA409WJQZ (1 / 2)

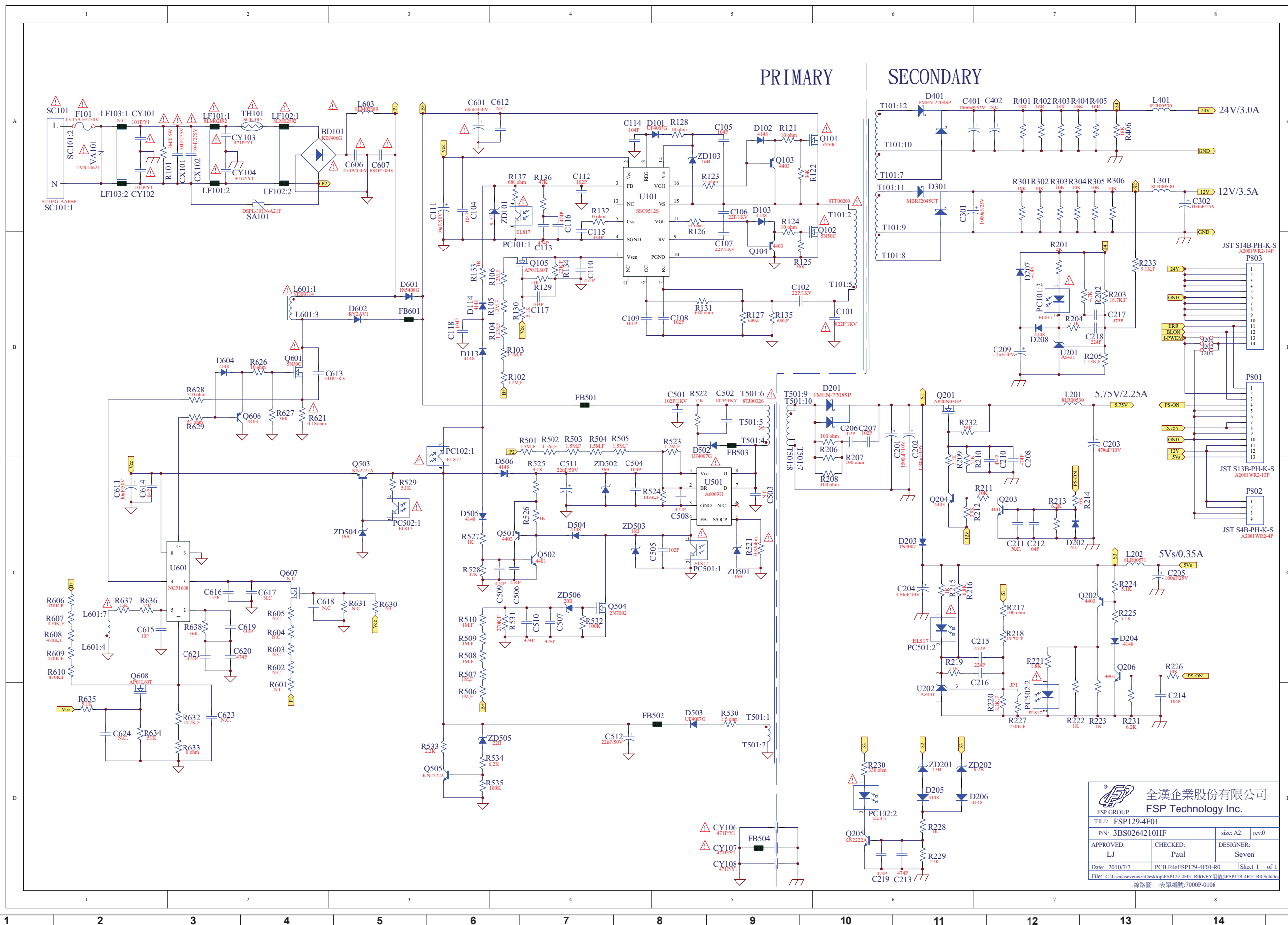




Power Supply Diagram LC32LE225E (AUO PANEL) RDENCA409WJQZ (2 / 2)



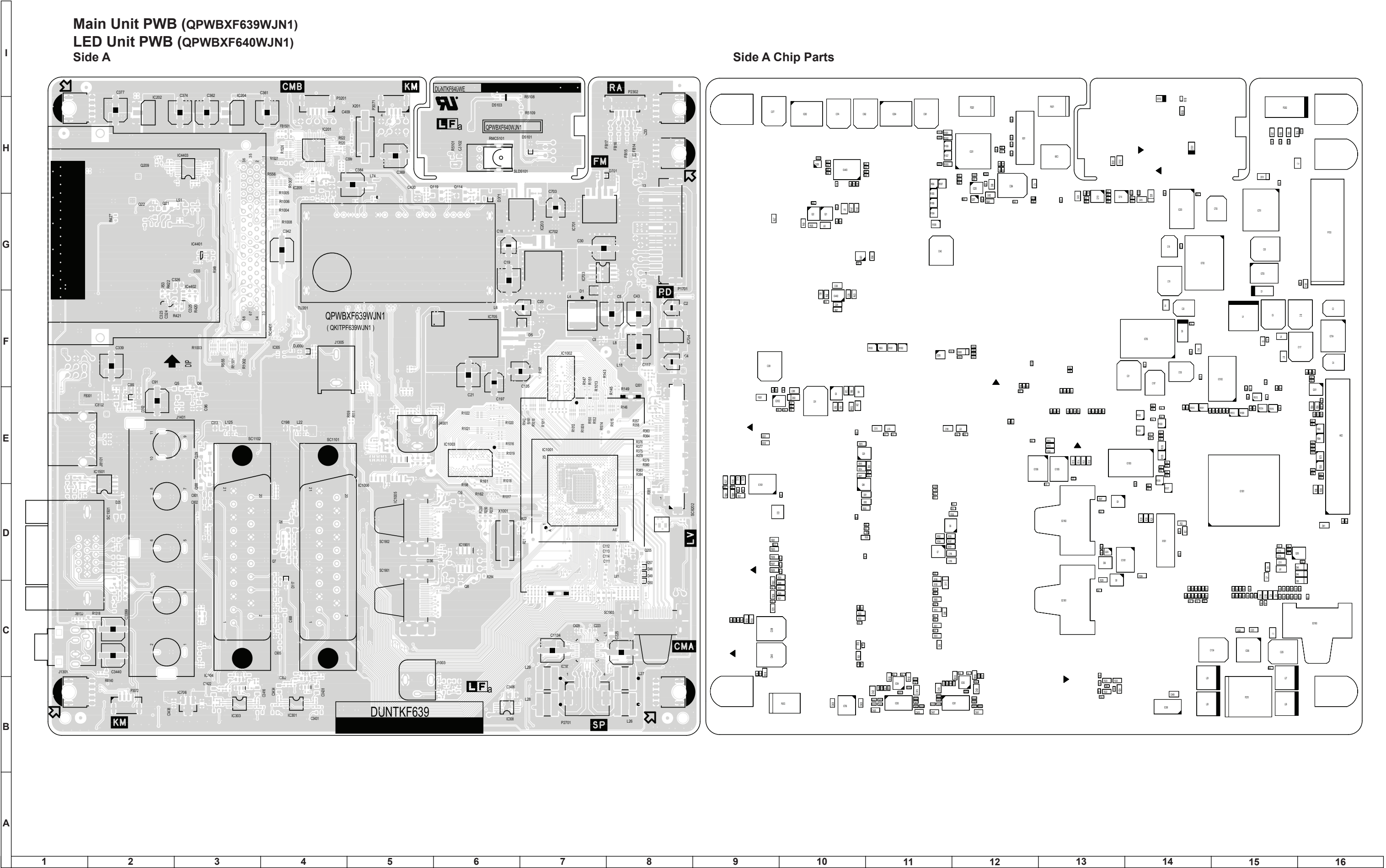
Power Supply Diagram LC32LE225EB (CMI PANEL) RDENCA411WJQZ (1 / 1)



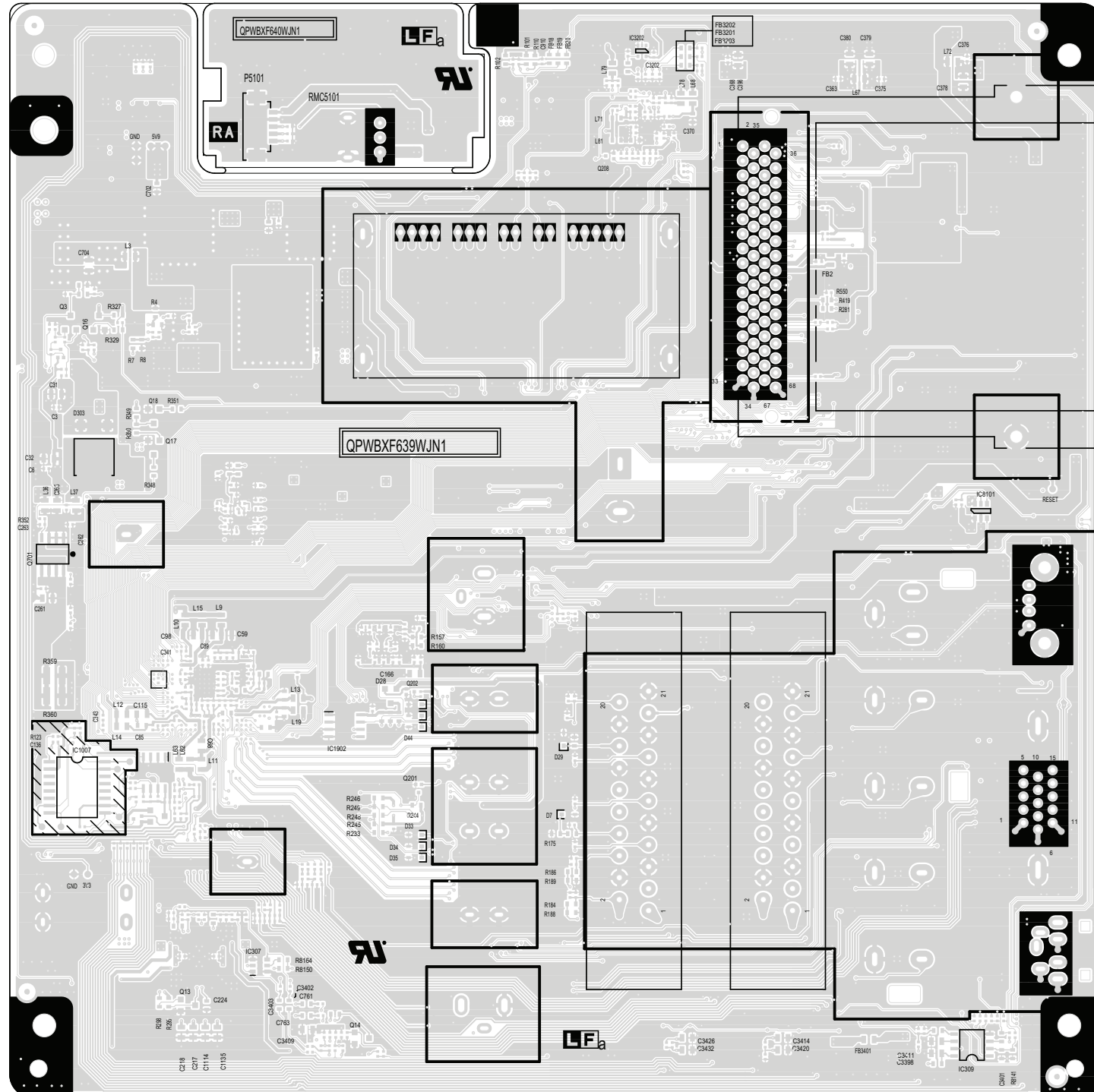
PRINTED WIRING BOARD

Main Unit PWB (QPWBF639WJN1)  
LED Unit PWB (QPWBF640WJN1)  
Side A

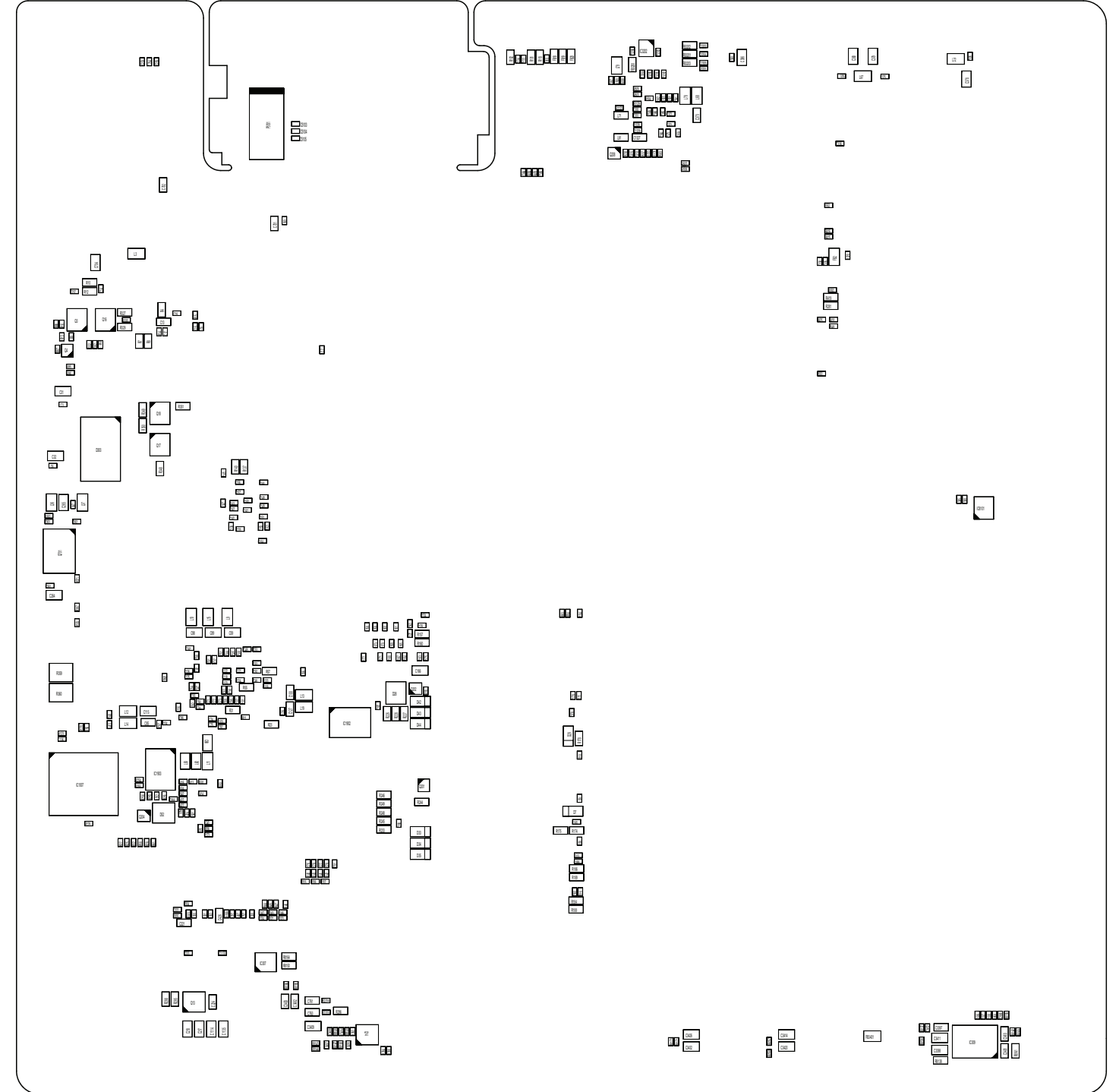
Side A Chip Parts



**Main Unit PWB (QPWBXF639WJN1)**  
**LED Unit PWB (QPWBXF640WJN1)**  
**Side B**



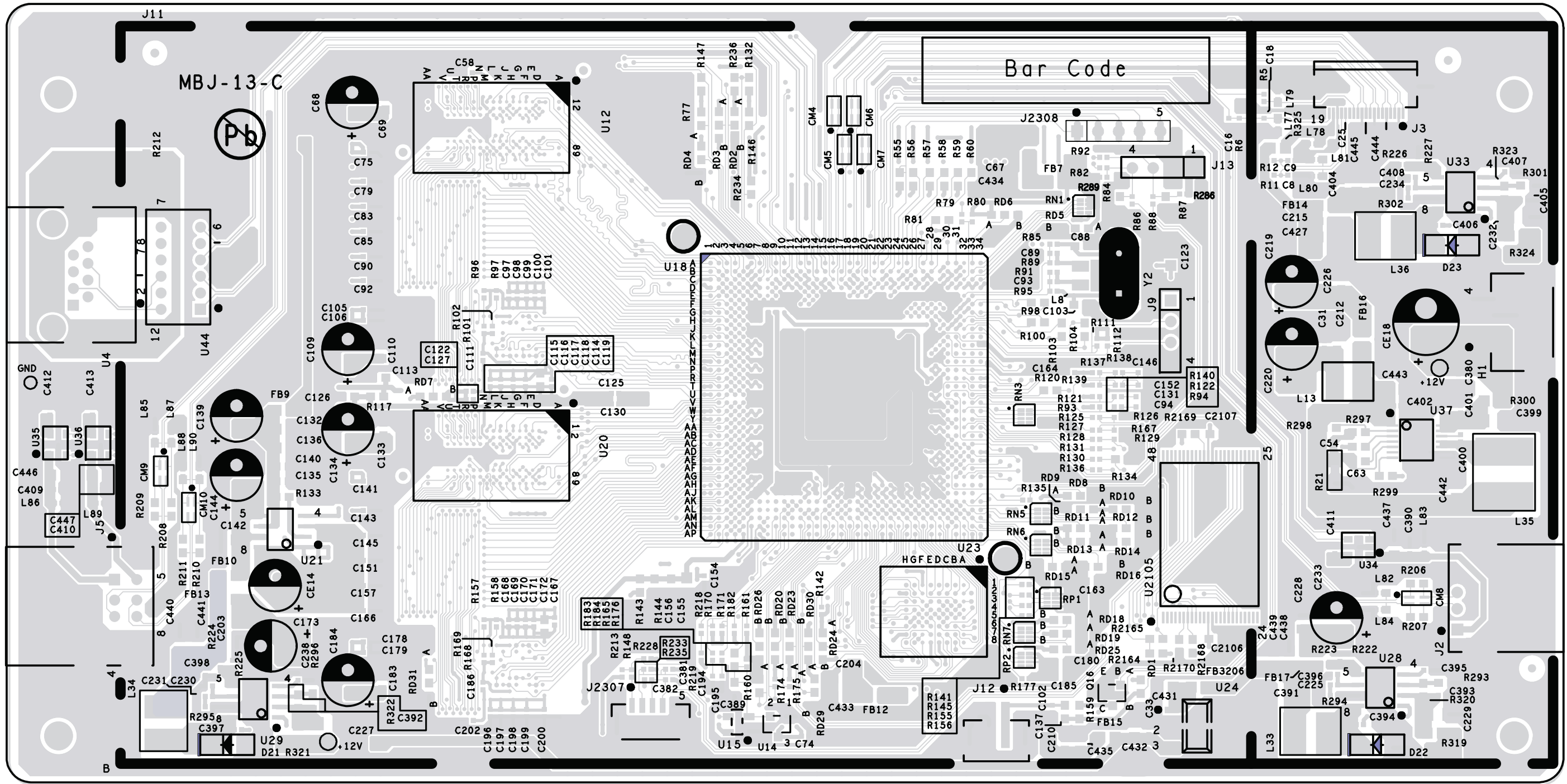
## Side B Chip Parts





Connected TV Unit PWB RUNTKA757WJQZ

Connected TV Unit, Side A

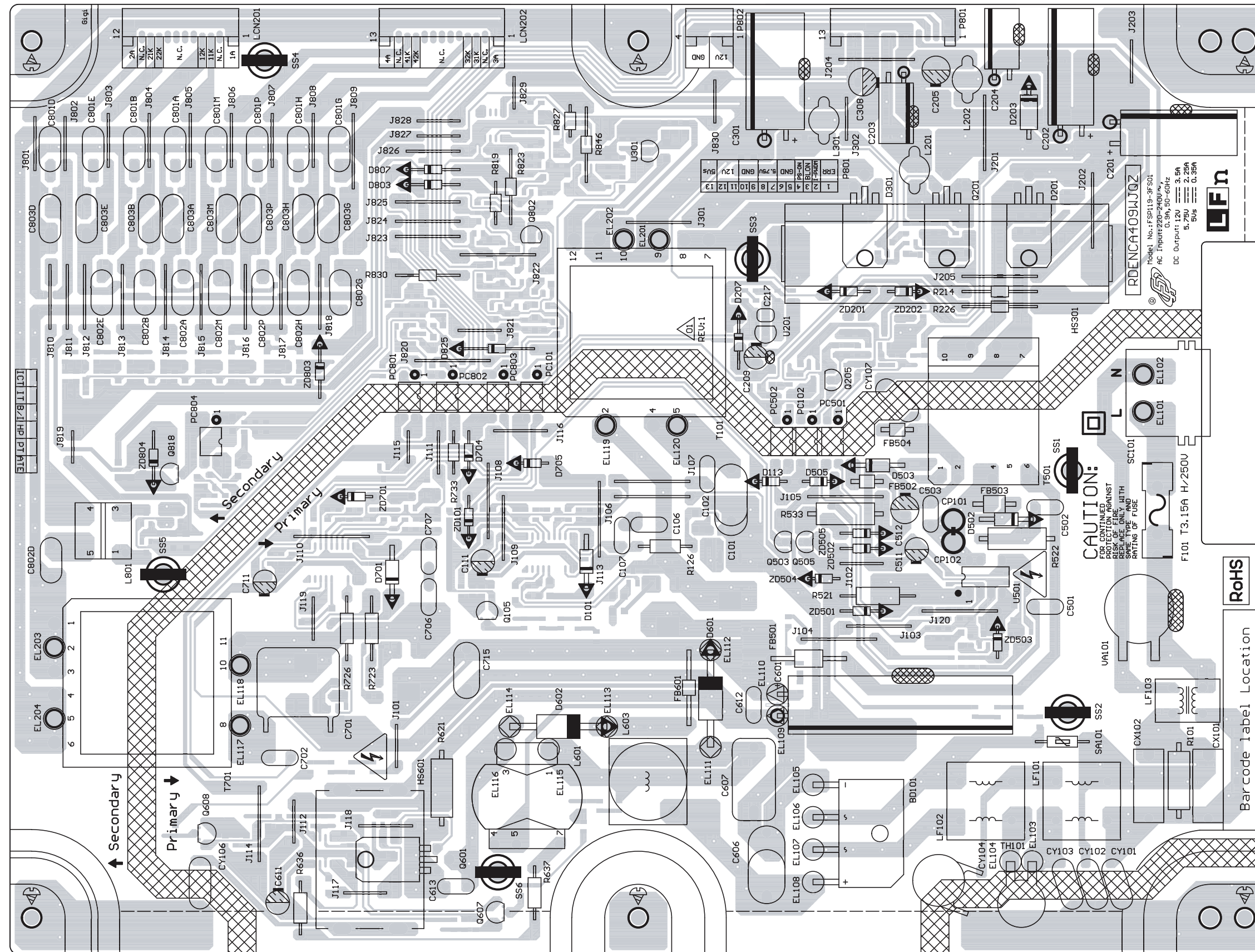






## Power Unit PWB LC32LE225E (AUO PANEL) RDENCA409WJQZ

### Power Unit, Side A

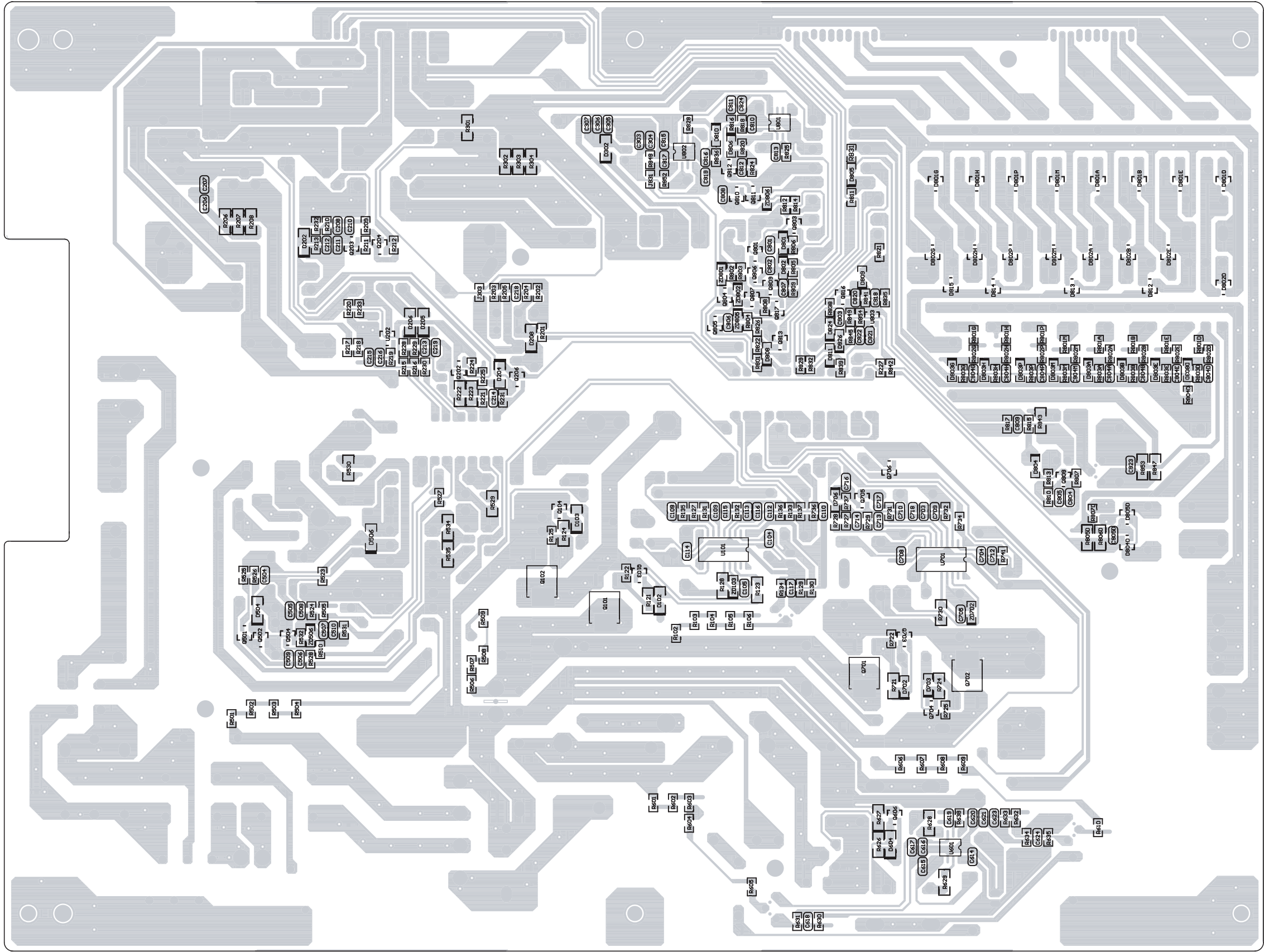




Power Unit PWB LC32LE225E (AUO PANEL) RDENCA409WJQZ

Power Unit, Side B

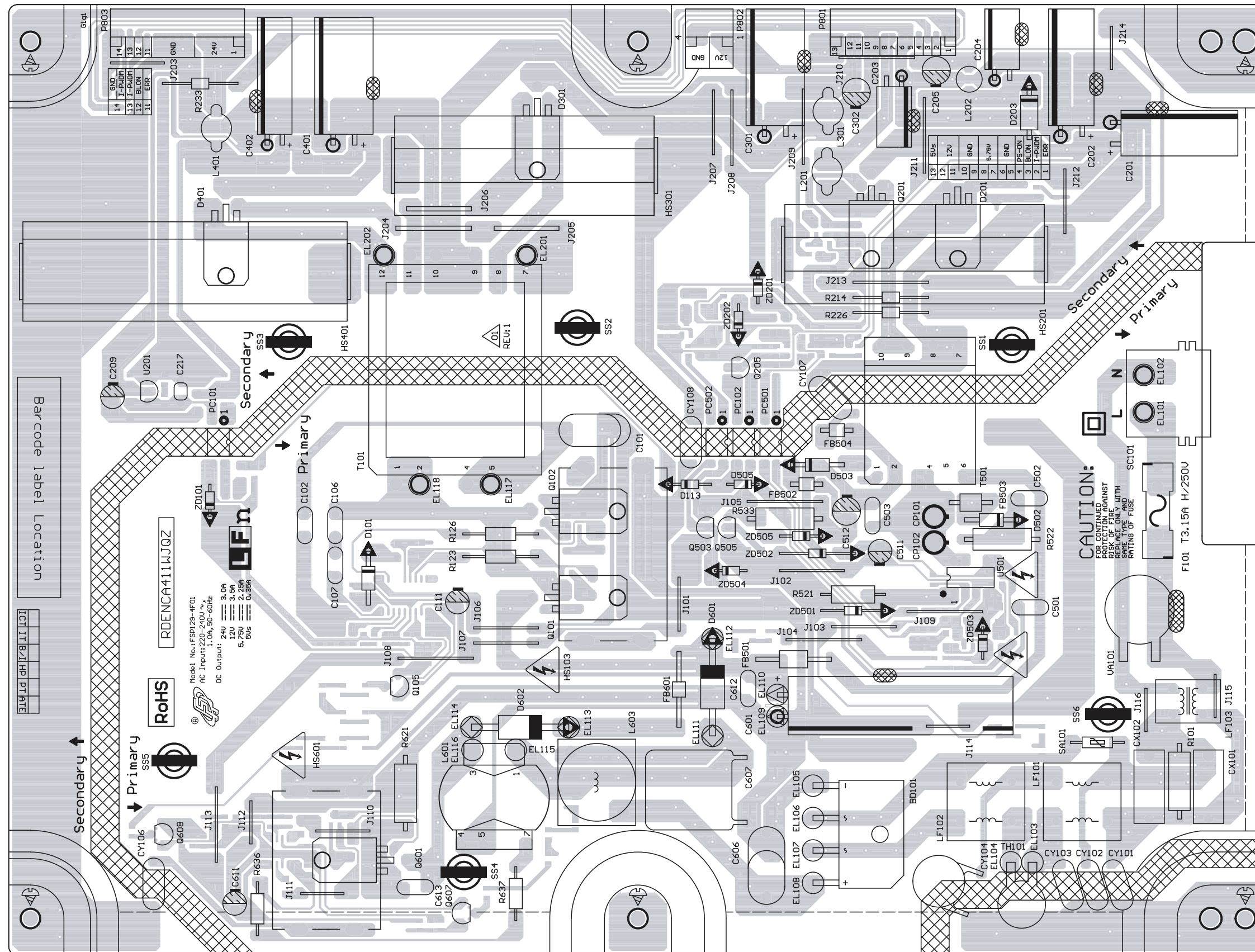
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

**Power Unit PWB LC32LE225EB (CMI PANEL) RDENCA411WJQZ**

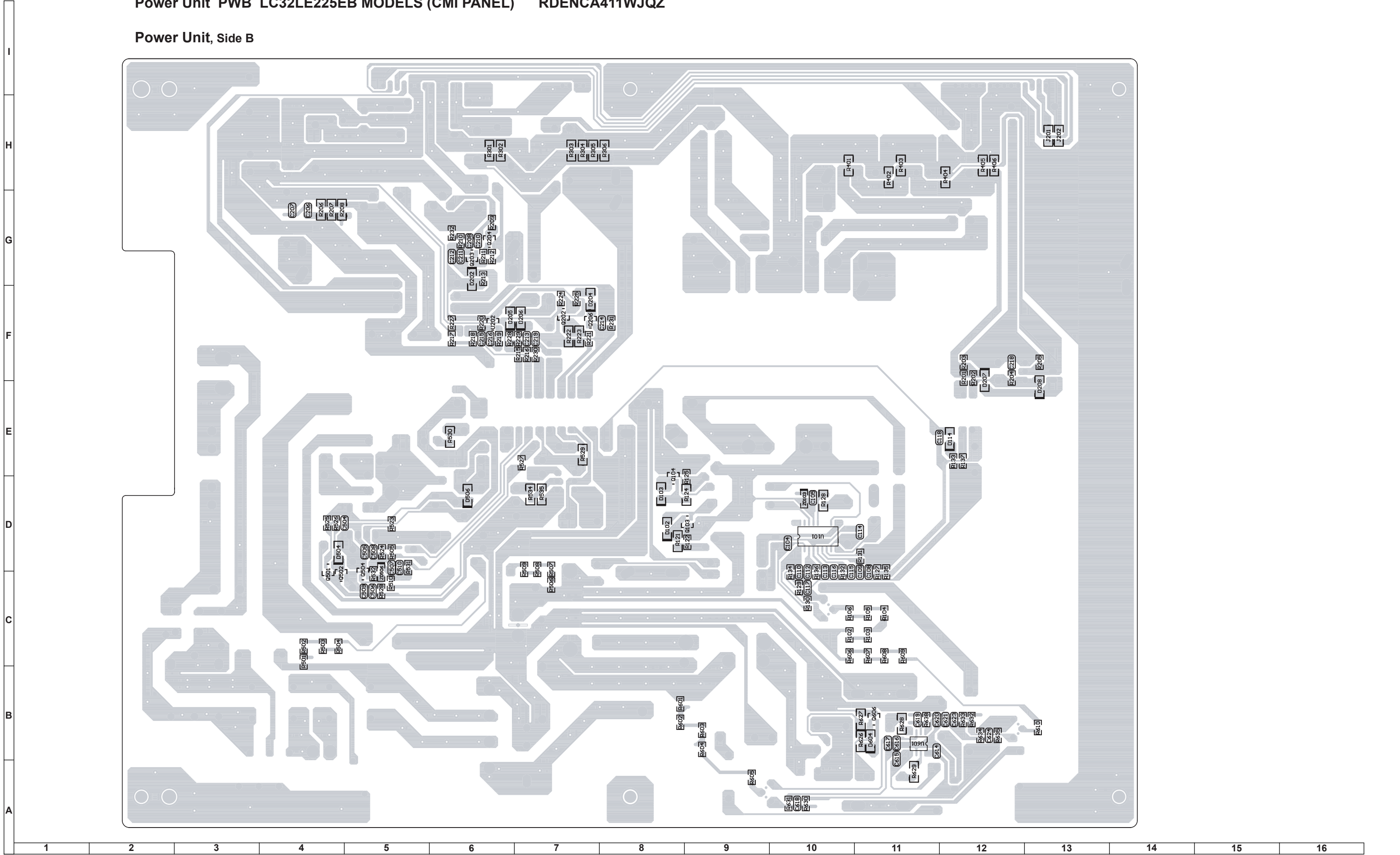
### Power Unit, Side A





Power Unit PWB LC32LE225EB MODELS (CMI PANEL) RDENCA411WJQZ

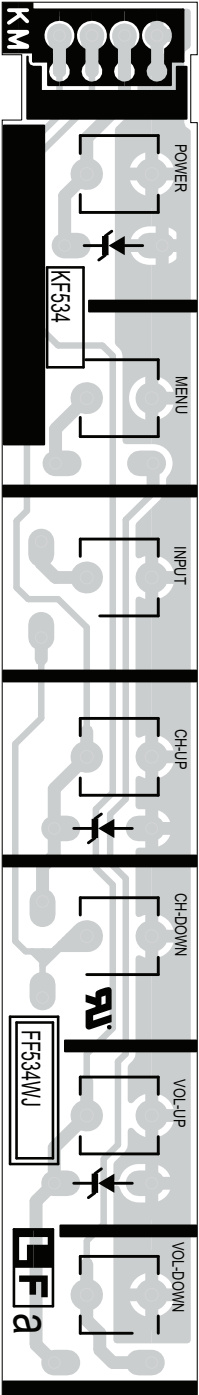
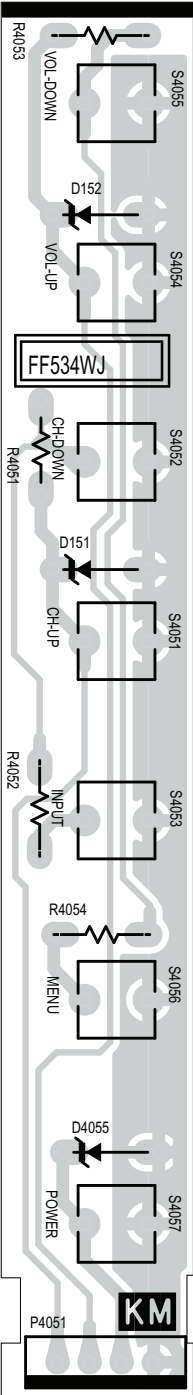
Power Unit, Side B



LC32LE225E LC32LE225EB KEY Unit PWB (QPWBFF534WJ)

KEY Unit, Side A

KEY Unit, Side B



## LE225E/225EB PARTS LISTING

## REPLACEMENT PARTS

Replacement parts which have special safety characteristics are identified in this manual. Electrical components having such features are identified by  in the Replacement Parts Listing.

The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended is not permitted.  
Replacement parts not shown in this service manual may create shock fire, or other hazards.

## HOW TO ORDER REPLACEMENT PARTS

To have your order completed promptly and correctly please supply the following information.

- |                 |             |             |
|-----------------|-------------|-------------|
| 1. MODEL NUMBER | 2. REF. NO. | 3. PART NO. |
| 4. DESCRIPTION  | 5. CODE     | 6. QUANTITY |

MARK *: SPARE PARTS		DELIVERY SECTION			
REF No.	PARTS	DESCRIPTION	* SN CODE	EX CODE	
LE225E/LE225EB LCD PANEL					
NOTE : THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY					
	RILK315D3LF31Y	PANEL 32" 50Hz T315HW05 V4 FULL HD AUO-32LE225E	S	CN	DL
	RILK315D3LF22Y	PANEL 32" FHD CMI LED V315H3-L3-32LE225EB	S	CL	D6
LE225E/LE225EB PRINTED WIRING BOARDS					
	DSETUF639WE08	MAIN/LED UNIT 32LE225E	S	AT	BE
	DSETUF639WE09	MAIN/LED UNIT 32LE225EB	S	AT	BE
	DUNTKF534WE02	KEY UNIT	S	AB	AG
▲ ▲	RDCNCA409WJQZ	POWER WITH LED driver 32" (FSP119-3FS01) - 32LE225E	S	BA	BQ
	RDCNCA411WJQZ	POWER WITHOUT LED DRIVER 32" FSP129-4F01 - 32LE225EB	S	AY	BM
	RUNTKA757WJQZ	CONNECTIVITY MODULE OREGAN	S	BH	CA
LE225E/LE225EB DUNTKF639WE**					
MAIN Unit					
INTEGRATED CIRCUITS					
IC 0201	RH-IXD148WJZZQ	IC COFDM M581222-LF LQFP 48	S	AG	AR
IC 0202	RH-IXC881WJZZY	IC APL1117-33VC-TR6	S	AA	AB
IC 0203	VH1BA5080BW-1Y	IC BA508COWFP-E2	S	AA	AD
IC 0204	RH-IXD112WJZZY	CI APL1117-12VC-TR6 SOT-223 ANPEC	S	AA	AB
IC 0301	VH1NJM4565V-1Y	IC NJM4565V-TE1	S	AA	AB
IC 0302	V51MH23T110-1Y	TRT 1M1H23T110	S	AA	AB
IC 0305	VH1NC75Z04P-1Y	IC NC75Z04P5X	S	AA	AA
IC 0306	RH-IXC867WJQZQ	IC MSH9000-LF AUDIO OUT MSTAR QFN40	S	AD	AL
IC 0307	V51MH23T110-1Y	TRT 1M1H23T110	S	AA	AB
IC 0308	VH1NJM4565V-1Y	IC NJM4565V-TE1	S	AA	AB
IC 0309	VH1BH3547F+-1L	IC BH3547-E2	S	AA	AB
IC 0701	RH-IXC913WJZZY	ICBA50DDOWHFP HPR5 ROHM	S	AB	AF
IC 0702	RH-IXC882WJZZY	IC APL1084-336C-TR6	S	AA	AD
IC 0703	VH1LV5893M+-1Y	IC LV5893M-TE-L-E	S	AA	AD
IC 0704	RH-IXC881WJZZY	IC APL1117-33VC-TR6	S	AA	AB
IC 0705	RH-IXC883WJZZY	IC AP1084K1B-L13 TO-263AB	S	AA	AD
IC 0706	VH1NJ78L09U-1Y	IC NJM78L09UA-TE1	S	AA	AC
IC 1001	RH-IXC869WJQZQ	IC M5D33036X-LF-T1 VIDEO-AUDIO PROCESSOR	S	AD	BE
IC 1002	RH-IXD228WJZZQ	IC K4T51163QI-HCF7 SAMSUNG	S	AF	AQ
IC 1003	RH-IXD228WJZZQ	IC K4T51163QI-HCF7 SAMSUNG	S	AF	AQ
IC 1006	VH1M24C64WN-1Y	IC M24C64WMN6T	S	AC	AH
IC 1007	RH-IXD212WJZZY	IC MX25L6445EMI-10G-TR 64MB SOP-16 T&R	S	AE	AN
IC 1501	RH-IXD080WJZZY	EPROM K24C02C-SIR6-S 2kbits SOP-8 INDUST	S	AA	AB
IC 1901	RH-IXD080WJZZY	EPROM K24C02C-SIR6-S 2kbits SOP-8 INDUST	S	AA	AB
IC 1902	RH-IXD080WJZZY	EPROM K24C02C-SIR6-S 2kbits SOP-8 INDUST	S	AA	AB
IC 4401	VH1TC7SH17U-1Y	IC TC7SH17F(TE85L-F)	S	AA	AA
IC 4402	VH1AHC1632V-1Y	IC 74AHC1632V J25	S	AA	AA
IC 4403	RH-IXD045WJZZY	IC TC74LC126FT(EK2.M) TOSHIBA	S	AA	AA
IC 8102	RH-IXD187WJZZY	CI AAT4614IGU-2-T1 ANALOGIC TECH	S	AA	AC
TRANSISTORS					
Q 0003	V52SA1530AR-1Y	TRT SA1530A-T12-1R MITSUBISHI	S	AA	AA
Q 0004	VSRTIN441U/-1Y	TRT RTIN441U-T111-1	S	AA	AA
Q 0005	V52SA1530AR-1Y	TRT SA1530A-T12-1R MITSUBISHI	S	AA	AA
Q 0006	V52SA1530AR-1Y	TRT SA1530A-T12-1R MITSUBISHI	S	AA	AA
Q 0007	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0008	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0009	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0013	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0014	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0016	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0017	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0018	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0021	V52SR020P0Q2-1Y	TRT RTR020P0Q2TL	S	AA	AC
Q 0022	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0114	V52SA1530AR-1Y	TRT SA1530A-T12-1R MITSUBISHI	S	AA	AA
Q 0119	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0201	VSRTIN441U/-1Y	TRT RTIN441U-T111-1	S	AA	AA
Q 0202	VSRTIN441U/-1Y	TRT RTIN441U-T111-1	S	AA	AA
Q 0203	VSRTIN441U/-1Y	TRT RTIN441U-T111-1	S	AA	AA
Q 0205	V52SC3928AR-1Y	TRT 25C3928AR-T12-1R MITSUBISHI	S	AA	AA
Q 0208	VSRTIN441U/-1Y	TRT RTIN441U-T111-1	S	AA	AA

REF NO. PARTS			DESCRIPTION	* SN CODE	EX CODE	
Q 0209	VSRTIN41U/-1Y	TRT RTIN41U/-1Y		S	AA	AA
Q 0701	VSRS5040P03-1Y	TRT RS5040P03TB		S	AA	AC
DIODES						
D 0001	VHDSMAB33L/-1Y	DIODE 5MAB33L-RTK/P		S	AA	AB
D 0006	VHDDAN217U/-1Y	DIODE DAN217T106		S	AA	AA
D 0007	RH-EXA633WJQZY	ZENER DIODE RKZ5 6B2KG		S	AA	AA
D 0008	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0009	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0010	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0011	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0012	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0013	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0014	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0015	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0016	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0017	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0018	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0019	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0020	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0021	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0022	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0023	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0024	RH-EXA675WJZZY	ZENER DIODE CDS2C166TH ESD 16V 0402		S	AA	AA
D 0025	VHDBR8425D// -1Y	DIODE RB425D1T146		S	AA	AB
D 0028	VHDBR8425D// -1Y	DIODE RB425D1T146		S	AA	AB
D 0029	RH-EXA633WJQZY	ZENER DIODE RKZ5 6B2KG		S	AA	AA
D 0034	RH-EXA633WJQZY	ZENER DIODE RKZ5 6B2KG		S	AA	AA
D 0035	RH-EXA633WJQZY	ZENER DIODE RKZ5 6B2KG		S	AA	AA
D 0036	VHDBR8425D// -1Y	DIODE RB425D1T146		S	AA	AB
D 0043	RH-EXA633WJQZY	ZENER DIODE RKZ5 6B2KG		S	AA	AA
D 0044	RH-EXA633WJQZY	ZENER DIODE RKZ5 6B2KG		S	AA	AA
D 0701	VHDSU191// -1Y	DIODE HSU191TRF		S	AA	AB
PACKAGED CIRCUITS						
X 0201	RCRSCA224WJZZY	CRYSTAL AT-41CD2-24.000MHZ_20_N_NDK		S	AA	AC
X 1001	RCRSCA225WJZZY	CRYSTAL AT-41CD2-12.000MHZ_20_N_NDK		S	AA	AC
COILS AND FILTERS						
L 0001	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0002	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0003	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0004	RCTLPA762WJQZY	COIL N8R040T330M 33UH 20%		S	AA	AB
L 0006	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0008	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0009	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0010	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0012	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0013	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0014	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0015	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0018	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0019	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0022	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0026	RCTLP8016WJQZY	COIL SWP A6045S220		S	AA	AB
L 0027	RCTLP8016WJQZY	COIL SWP A6045S220		S	AA	AB
L 0028	RCTLP8016WJQZY	COIL SWP A6045S220		S	AA	AB
L 0029	RCTLP8016WJQZY	COIL SWP A6045S220		S	AA	AB
L 0036	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0051	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0052	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0061	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0062	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0067	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0068	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0071	RBLN-A529WJZZY	FERRITE MI0603M121R-10		S	AA	AA
L 0072	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0074	RBLN-A529WJZZY	FERRITE MI0603M121R-10		S	AA	AA
L 0078	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0079	RBLN-A528WJZZY	FERRITE HI0805N600R-10		S	AA	AA
L 0081	RBLN-A529WJZZY	FERRITE MI0603M121R-10		S	AA	AA
L 0401	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD		S	AA	AA
TUNER						
TU 0201	RTUDA065WJQZ	TUNER TDW-S723D		S	AM	AX
CAPACITORS						
C 0002	VCEAPF1CN106MY	ELEC C 10UF 20% 16V		S	AA	AA
C 0003	VCKYZC1F104ZY	CAPACITOR 100NF 16V 20%		S	AA	AA
C 0004	VCEAPF1CN106MY	ELEC C 10UF 20% 16V		S	AA	AA
C 0005	VCEASKJCN227MY	ELEC C 220UF 20% 16V MVY16VC220MF80		S	AA	AB
C 0007	VCKYZC1F104ZY	CAPACITOR 100NF 16V 20%		S	AA	AA
C 0008	VCKYZC1F104ZY	CAPACITOR 100NF 16V 20%		S	AA	AA
C 0009	VCKYCYJ8105KY	CAPACITOR GRM398 105K 6.3 (1608)SMD		S	AA	AA
C 0010	VCKYZC1F104ZY	CAPACITOR 100NF 16V 20%		S	AA	AA
C 0012	VCKYZC1F104ZY	CAPACITOR 100NF 16V 20%		S	AA	AA
C 0013	VCKYCYJ8105KY	CAPACITOR GRM398 105K 6.3 (1608)SMD		S	AA	AA
C 0014	VCKYZC1F104ZY	CAPACITOR 100NF 16V 20%		S	AA	AA
C 0015	VCKYZC1B232KY	CAPACITOR 22NF 16V 10%		S	AA	AA

REF No.	PARTS	DESCRIPTION	* SN CODE	EX CODE
C 0016	VCKY21C1B682KY	CAPACITOR 6.8NF 16V 10%	S	AA AA
C 0017	VCKY21C1B103KY	CAPACITOR 10NF 16V 10%	S	AA AA
C 0018	VCEAPF1CN106MY	ELEC C 100UF 20% 16V	S	AA AA
C 0019	VCEASX0JN107MY	ELEC C 100UF 6.3V MVL6.3VC100MF60E1	S	AA AB
C 0020	VCEAPF1CN106MY	ELEC C 10UF 20% 16V	S	AA AA
C 0021	VCEASX0JN107MY	ELEC C 100UF 6.3V MVL6.3VC100MF60E1	S	AA AB
C 0022	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0023	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0024	VCCCZ1H4200JY	C CERAM 20PF 50V 5%	S	AA AA
C 0025	VCCCZ1H4200JY	C CERAM 20PF 50V 5%	S	AA AA
C 0026	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0027	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0028	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0029	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0030	VCAAPE1AJ127MY	ELEC C 120UF 20% 10V LOW ESR	S	AA AC
C 0031	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0032	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0033	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0034	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0035	VCKY21CB153KY	CAPACITOR 15NF 16V 10%	S	AA AA
C 0036	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0037	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0038	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0039	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0040	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0043	VCEASX0JN107MY	ELEC C 100UF 6.3V MVL6.3VC100MF60E1	S	AA AB
C 0046	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0049	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0051	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0053	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0054	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0055	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0057	VCKY21CB153KY	CAPACITOR 15NF 16V 10%	S	AA AA
C 0059	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0062	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0065	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0066	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0067	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0068	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0070	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0071	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0073	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0074	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0076	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0077	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0078	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0079	VCKY21H8102KY	CAPACITOR 1NF 50V 10%	S	AA AA
C 0080	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0081	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0082	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0084	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0085	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0086	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0087	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0088	VCKY21H8102KY	CAPACITOR 1NF 50V 10%	S	AA AA
C 0089	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0090	VCKY21CB153KY	CAPACITOR 15NF 16V 10%	S	AA AA
C 0091	VCEASX0JN107MY	ELEC C 100UF 6.3V MVL6.3VC100MF60E1	S	AA AB
C 0092	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0093	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0094	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0095	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0096	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0097	VCKY21CB473KY	CAPACITOR 47NF 16V 10%	S	AA AA
C 0098	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0099	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0100	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0101	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0102	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0103	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0104	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0105	VCKY21CB153KY	CAPACITOR 15NF 16V 10%	S	AA AA
C 0106	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0107	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0108	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0111	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0112	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0113	VCKYCY0JB105KY	CAPACITOR GRM39B 105K 6.3 (1608)SMD	S	AA AA
C 0114	VCKYCY1AB475KN	CAPACITOR GRM39B 475K 10 (1608)SMD	S	AA AA
C 0115	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0116	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0117	VCEASX0JN107MY	ELEC C 100UF 6.3V MVL6.3VC100MF60E1	S	AA AB
C 0118	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0119	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0120	VCKY21H8102KY	CAPACITOR 1NF 50V 10%	S	AA AA
C 0121	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0124	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0125	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA

REF No.	PARTS	DESCRIPTION	* SN CODE	EX CODE
C 0126	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0127	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0128	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0131	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0136	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0139	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0140	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0142	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0144	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0145	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0146	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0147	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0149	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0150	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0151	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0154	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0155	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0156	VCKY21H8102KY	CAPACITOR 1NF 50V 10%	S	AA AA
C 0157	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0159	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0162	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0163	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0165	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0166	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0167	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0170	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0171	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0172	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0173	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0174	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0175	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0176	VCKY21H8102KY	CAPACITOR 1NF 50V 10%	S	AA AA
C 0177	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0180	VCCCZ1H4470JY	C CERAM 47PF 50V 5%	S	AA AA
C 0181	VCKY21CB472KY	CAPACITOR 4.7NF 50V 10%	S	AA AA
C 0182	VCKY21H8472KY	CAPACITOR 4.7NF 50V 10%	S	AA AA
C 0183	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0184	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0185	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0186	RC-KZA115WJZZY	CERAM C 2.2UF 10V GRM188B31A225KE33D	S	AA AA
C 0189	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0190	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0191	VCCCZ1H4470JY	C CERAM 47PF 50V 5%	S	AA AA
C 0195	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0196	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0197	VCAAPE0J107MY	ELEC C 100UF 20% 6.3V 65VP100M	S	AA AC
C 0198	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0202	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0203	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0204	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0207	VCKY21EF104ZY	CAPACITOR 100NF 25V 20%	S	AA AA
C 0208	VCKY21EF104ZY	CAPACITOR 100NF 25V 20%	S	AA AA
C 0217	VCKY21EB224KY	CERAM C 220NF 25V 10%	S	AA AA
C 0218	VCKY21EB224KY	CERAM C 220NF 25V 10%	S	AA AA
C 0220	VCKY21EF104ZY	CAPACITOR 100NF 25V 20%	S	AA AA
C 0221	VCKYCY1CB224KY	CAPACITOR GRM39B 224K 16 (1608)SMD	S	AA AA
C 0223	VCKYCY1CB224KY	CAPACITOR GRM39B 224K 16 (1608)SMD	S	AA AA
C 0224	RC-KZA621WJQZY	CERAM C 1uF 25V TMK107B1J05KAPT	S	AA AA
C 0225	VCEASKJCN227MY	ELEC C 220UF 20% 16V MVV16VC220MF80	S	AA AB
C 0230	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0232	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0234	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0248	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0253	VCCCZ1H4331JY	C CERAM 330PF 50V 5%	S	AA AA
C 0261	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0262	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0263	VCKY21EF104ZY	CAPACITOR 100NF 25V 20%	S	AA AA
C 0265	RC-KZA237WJZZY	CERAM C EMK212B1J06K6FT 10UF 16V 10%	S	AA AA
C 0319	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0320	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0323	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0324	VCKYCY0JB105KY	CAPACITOR GRM39B 105K 6.3 (1608)SMD	S	AA AA
C 0325	VCKYCY0JB105KY	CAPACITOR GRM39B 105K 6.3 (1608)SMD	S	AA AA
C 0326	RC-KZA069WJZZY	CERAM C 4.7UF 10V GRM21B31A475KA74L	S	AA AA
C 0327	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0330	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0331	VCCCZ1H4101JY	S. CHIP CAP 100PF 50V 5%	S	AA AA
C 0332	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0333	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0336	VCCCZ1H4220JY	C CERAM 22PF 50V 5%	S	AA AA
C 0337	VCKY21CB103KY	CAPACITOR 10NF 16V 10%	S	AA AA
C 0338	VCKY21CF104ZY	CAPACITOR 100NF 16V 20%	S	AA AA
C 0339	VCAAPE1AJ127MY	ELEC C 120UF 20% 10V LOW ESR	S	AA AC
C 0341	VRS-CZ1F121JY	RES 0402 120 OHM 5% 1/16W SMD	S	AA AA
C 0342	VCEASX0JN107MY	ELEC C 100UF 6.3V MVL6.3VC100MF60E1	S	AA AB
C 0343	VCCCZ1H4101JY	S. CHIP CAP 100PF 50V 5%	S	AA AA
C 0354	VCCCZ1H4470JY	C CERAM 47PF 50V 5%	S	AA AA
C 0355	VCCCZ1H4470JY	C CERAM 47PF 50V 5%	S	AA AA



	REF No.	PARTS	DESCRIPTION	* SN CODE	EX CODE
	C 0357	VCKY CZ1CB473KY	CAPACITOR 47NF 16V 10%	S AA	AA
	C 0359	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0360	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0361	VCEASX0JN107MY	ELEC C 100UF 6.3V MWL6.3VCI00MF60E1	S AA	AB
	C 0362	VCEASX0JN107MY	ELEC C 100UF 6.3V MWL6.3VCI00MF60E1	S AA	AB
	C 0363	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0364	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0365	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0367	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0368	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0369	VCEASX0JN107MY	ELEC C 100UF 6.3V MWL6.3VCI00MF60E1	S AA	AB
	C 0370	RC-KZA115WJZZY	CERAM C 2.2UF 10V 6RM188B31A225KE33D	S AA	AA
	C 0371	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0372	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0374	VCEASX0JN107MY	ELEC C 100UF 6.3V MWL6.3VCI00MF60E1	S AA	AB
	C 0375	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0376	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0377	VCEASX0JN107MY	ELEC C 100UF 6.3V MWL6.3VCI00MF60E1	S AA	AB
	C 0383	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0384	VCEASX0JN107MY	ELEC C 100UF 6.3V MWL6.3VCI00MF60E1	S AA	AB
	C 0387	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0389	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
	C 0390	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0391	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0392	VCKY CZ1CB223KY	CAPACITOR 22NF 16V 10%	S AA	AA
	C 0393	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0394	VCCCCZ1HH220JY	C CERAM 22PF 50V 5%	S AA	AA
	C 0395	VCCCCZ1HH220JY	C CERAM 22PF 50V 5%	S AA	AA
	C 0399	VCCCCZ1HH330JY	S. CHIP CAP 33PF 50V 5%	S AA	AA
	C 0401	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0405	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0406	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0408	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0409	VCCCCZ1HH330JY	S. CHIP CAP 33PF 50V 5%	S AA	AA
	C 0410	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
	C 0413	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0415	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0416	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0417	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0418	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0420	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 0422	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0424	VCCCCZ1HH271JY	C CERAM 270PF 50V 5%	S AA	AA
	C 0426	VCKY CY1CB224KY	CAPACITOR 6RM39B 224K 16 (1608)SMD	S AA	AA
	C 0427	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0428	VCKY CZ1CB103KY	CAPACITOR 10NF 16V 10%	S AA	AA
	C 0429	VCKY CY1CB224KY	CAPACITOR 6RM39B 224K 16 (1608)SMD	S AA	AA
	C 0430	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
	C 0431	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0432	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 0650	VCKY CZ1CB473KY	CAPACITOR 47NF 16V 10%	S AA	AA
	C 0701	RC-KZA114WJZZY	CERAM C 1UF 25V 6RM188B31E105AK75D	S AA	AA
	C 0702	RC-KZA114WJZZY	CERAM C 1UF 25V 6RM188B31E105AK75D	S AA	AA
	C 0703	VCAPEOJ107MY	ELEC C 100UF 20% 6.3V 65VP100M	S AA	AC
	C 0737	VCCCCZ1HH220JY	C CERAM 22PF 50V 5%	S AA	AA
	C 0739	VCCCCZ1HH220JY	C CERAM 22PF 50V 5%	S AA	AA
	C 0740	VCCCCZ1HH220JY	C CERAM 22PF 50V 5%	S AA	AA
	C 0741	VCCCCZ1HH220JY	C CERAM 22PF 50V 5%	S AA	AA
	C 0761	RC-KZA621WJQZY	CERAM C 1uF 25V TMK107B1J05KAFT	S AA	AA
	C 0763	RC-KZA621WJQZY	CERAM C 1uF 25V TMK107B1J05KAFT	S AA	AA
	C 1114	VCKYTV1EB224KY	CERAM C 220NF 20% 16V MVY16VC220MF80	S AA	AA
	C 1133	VCKY CZ1EF104ZY	CAPACITOR 100NF 25V 20%	S AA	AA
	C 1134	VCEASK1CN227MY	ELEC C 220UF 20% 16V MVY16VC220MF80	S AA	AB
	C 1135	VCKYTV1EB224KY	CERAM C 220NF 20% 16V MVY16VC220MF80	S AA	AA
	C 1327	RC-KZA115WJZZY	CERAM C 2.2UF 10V 6RM188B31A225KE33D	S AA	AA
	C 1328	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 1329	VCCCCZ1HH101JY	S. CHIP CAP 100PF 50V 5%	S AA	AA
	C 2301	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 2302	VCCCCZ1HH220JY	C CERAM 22PF 50V 5%	S AA	AA
	C 2303	VCKY CZ1CF104ZY	CAPACITOR 100NF 16V 20%	S AA	AA
	C 2304	VCCCCZ1HH101JY	S. CHIP CAP 100PF 50V 5%	S AA	AA
	C 2861	VCKY CZ1H222KY	CAPACITOR 2.2NF 50V 10%	S AA	AA
	C 3201	VCCCCZ1HH101JY	S. CHIP CAP 100PF 50V 5%	S AA	AA
	C 3205	VCCCCZ1HH101JY	S. CHIP CAP 100PF 50V 5%	S AA	AA
	C 3207	VCCCCZ1HH101JY	S. CHIP CAP 100PF 50V 5%	S AA	AA
	C 3397	VCKYCY0J105KY	CAPACITOR 6RM39B 105K 6.3 (1608)SMD	S AA	AA
	C 3398	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
	C 3399	VCEASK1CN227MY	ELEC C 220UF 20% 16V MVY16VC220MF80	S AA	AB
	C 3401	RC-KZA115WJZZY	CERAM C 2.2UF 10V 6RM188B31A225KE33D	S AA	AA
	C 3402	VCKYCY1CB224KY	CAPACITOR 6RM39B 224K 16 (1608)SMD	S AA	AA
	C 3403	VCKYCY1CB224KY	CAPACITOR 6RM39B 224K 16 (1608)SMD	S AA	AA
	C 3404	VCCCCZ1HH330JY	S. CHIP CAP 33PF 50V 5%	S AA	AA
	C 3405	VCCCCZ1HH470JY	C CERAM 47PF 50V 5%	S AA	AA
	C 3406	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
	C 3407	VCCCCZ1HH470JY	C CERAM 47PF 50V 5%	S AA	AA
	C 3408	VCCCCZ1HH330JY	S. CHIP CAP 33PF 50V 5%	S AA	AA
	C 3409	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
	C 3410	VCKYCY0J105KY	CAPACITOR 6RM39B 105K 6.3 (1608)SMD	S AA	AA

REF No.	PARTS	DESCRIPTION	* SN CODE	EX CODE
C 3411	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
C 3412	VCKY CZ1H822KY	CAPACITOR 2.2NF 50V 10%	S AA	AA
C 3426	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
C 3428	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
C 3429	VCCCCZ1HH470JY	C CERAM 47PF 50V 5%	S AA	AA
C 3430	VCCCCZ1HH330JY	S. CHIP CAP 33PF 50V 5%	S AA	AA
C 3431	RC-KZA621WJQZY	CERAM C 1uF 25V TMK107B1J05KAFT	S AA	AA
C 3432	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
C 3434	RC-KZA237WJZZY	CERAM C EMK212B1J06KGFT 10UF 16V 10%	S AA	AA
C 3435	VCCCCZ1HH470JY	C CERAM 47PF 50V 5%	S AA	AA
C 3436	VCCCCZ1HH330JY	S. CHIP CAP 33PF 50V 5%	S AA	AA
C 3437	RC-KZA621WJQZY	CERAM C 1uF 25V TMK107B1J05KAFT	S AA	AA
C 3438	RC-KZA114WJZZY	CERAM C 1UF 25V GRM188B31E105AK75D	S AA	AA
C 3439	RC-KZA114WJZZY	CERAM C 1UF 25V GRM188B31E105AK75D	S AA	AA
C 3440	VCEASK1CN227MY	ELEC C 220UF 20% 16V MVY16VC220MF80	S AA	AB
RESISTORS				
R 0004	VR5-CY1JF104JY	RES 0603 100KOHM 5% 1/10W SMD	S AA	AA
R 0007	VR5-CY1JF122FY	RES 0603 1.2KOHM 1% 1/10W SMD	S AA	AA
R 0008	VR5-CY1JF202FY	RES 0603 2KOHM 1% 1/10W SMD	S AA	AA
R 0009	VR5-CZ1JF473JY	RES 0402 47KOHM 5% 1/16W SMD	S AA	AA
R 0010	VR5-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0011	VR5-CZ1JF121JY	RES 0402 120 OHM 5% 1/16W SMD	S AA	AA
R 0012	VR5-CY1JF222JY	RES 0603 2.2KOHM 5% 1/10W SMD	S AA	AA
R 0013	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0014	VR5-CZ1JF102JY	RES 0402 1KOHM 5% 1/16W SMD	S AA	AA
R 0015	VR5-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0021	VR5-CY1JF105JY	RES 0603 1MOHM 5% 1/10W SMD	S AA	AA
R 0022	VR5-CY1JF000JY	RES 0603 0 OHM 5% 1/10W SMD	S AA	AA
R 0023	VR5-CY1JF000JY	RES 0603 0 OHM 5% 1/10W SMD	S AA	AA
R 0024	VR5-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0025	VR5-CZ1JF223JY	RES 0402 22KOHM 5% 1/16W SMD	S AA	AA
R 0026	VR5-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0027	VR5-CZ1JF223JY	RES 0402 22KOHM 5% 1/16W SMD	S AA	AA
R 0031	VR5-CY1JF391FY	RES 0603 390 OHM 1% 1/10W SMD	S AA	AA
R 0033	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0034	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0035	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0036	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0037	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0038	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0039	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0040	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0041	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0042	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0043	VR5-CZ1JF471JY	RES 0402 470 OHM 5% 1/16W SMD	S AA	AA
R 0044	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0045	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0046	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0047	VR5-CZ1JF471JY	RES 0402 470 OHM 5% 1/16W SMD	S AA	AA
R 0049	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0050	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0053	VR5-CY1JF330JY	RES 0603 33 OHM 5% 1/10W SMD	S AA	AA
R 0055	VR5-CY1JF102FY	CHIP RESISTOR 1% 1K	S AA	AA
R 0056	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0057	VR5-CY1JF102FY	CHIP RESISTOR 1% 1K	S AA	AA
R 0058	VR5-CZ1JF223JY	RES 0402 22KOHM 5% 1/16W SMD	S AA	AA
R 0060	VR5-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0061	VR5-CZ1JF223JY	RES 0402 22KOHM 5% 1/16W SMD	S AA	AA
R 0063	VR5-CZ1JF102JY	RES 0402 1KOHM 5% 1/16W SMD	S AA	AA
R 0066	VR5-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0068	VR5-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0069	VR5-CZ1JF220JY	RES 0402 22 OHM 5% 1/16W SMD	S AA	AA
R 0070	VR5-CZ1JF220JY	RES 0402 22 OHM 5% 1/16W SMD	S AA	AA
R 0071	VR5-CZ1JF472JY	RES 0402 4.7KOHM 5% 1/16W SMD	S AA	AA
R 0072	VR5-CZ1JF472JY	RES 0402 4.7KOHM 5% 1/16W SMD	S AA	AA
R 0073	VR5-CY1JF102JY	RES 0603 1KOHM 5% 1/10W SMD	S AA	AA
R 0076	VR5-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0079	VR5-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0080	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0082	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0084	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0086	VR5-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0088	VR5-CZ1JF102JY	RES 0402 1KOHM 5% 1/16W SMD	S AA	AA
R 0092	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0101	VR5-CY1JF333JY	RES 0603 33KOHM 5% 1/10W SMD	S AA	AA
R 0102	VR5-CY1JF333JY	RES 0603 33KOHM 5% 1/10W SMD	S AA	AA
R 0103	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0104	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0105	VR5-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0107	VR5-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0109	VR5-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0110	VR5-CY1JF333JY	RES 0603 33KOHM 5% 1/10W SMD	S AA	AA
R 0111	VR5-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0112	VR5-CY1JF472JY	RES 0603 4.7KOHM 5% 1/10W SMD	S AA	AA
R 0113	VR5-CY1JF472JY	RES 0603 4.7KOHM 5% 1/10W SMD	S AA	AA
R 0114	VR5-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0115	VR5-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA



REF No.	PARTS	DESCRIPTION	* SN CODE	EX CODE
R 0120	VRS-CZ1JF472JY	RES 0402 4.7KOHM 5% 1/16W SMD	S AA	AA
R 0121	VRS-CZ1JF472JY	RES 0402 4.7KOHM 5% 1/16W SMD	S AA	AA
R 0122	VRS-CZ1JF102JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0133	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0134	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0135	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0136	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0137	VRS-CY1JF102FY	CHIP RESISTOR 1% 1K	S AA	AA
R 0138	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0139	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0140	VRS-CY1JF102FY	CHIP RESISTOR 1% 1K	S AA	AA
R 0141	VRS-CZ1JF220JY	RES 0402 22 OHM 5% 1/16W SMD	S AA	AA
R 0142	VRS-CZ1JF220JY	RES 0402 22 OHM 5% 1/16W SMD	S AA	AA
R 0143	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0144	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0145	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0146	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0147	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0148	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0149	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0150	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0151	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0152	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0153	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0154	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0155	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0156	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0157	VRS-CY1JF102FY	CHIP RESISTOR 1% 1K	S AA	AA
R 0158	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0159	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0160	VRS-CY1JF102FY	CHIP RESISTOR 1% 1K	S AA	AA
R 0161	VRS-CZ1JF220JY	RES 0402 22 OHM 5% 1/16W SMD	S AA	AA
R 0162	VRS-CZ1JF220JY	RES 0402 22 OHM 5% 1/16W SMD	S AA	AA
R 0163	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0164	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0165	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0166	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0167	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0168	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0169	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0170	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0171	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0172	VRS-CZ1JF560JY	RES 0402 56 OHM 5% 1/16W SMD	S AA	AA
R 0173	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0174	VRS-CY1JF623JY	RES 0603 62KOHM 5% 1/10W SMD	S AA	AA
R 0175	VRS-CY1JF113FY	RES 0603 11KOHM 1% 1/10W SMD	S AA	AA
R 0176	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0178	VRS-CY1JF750JY	S CHIP RESISTOR 75 OHM	S AA	AA
R 0179	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0180	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0184	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0185	VRS-CY1JF471JY	RES 0603 470 OHM 5% 1/10W SMD	S AA	AA
R 0186	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0187	VRS-CY1JF683JY	RES 0603 68KOHM 5% 1/10W SMD	S AA	AA
R 0188	VRS-CY1JF123JY	RES 0603 12KOHM 5% 1/10W SMD	S AA	AA
R 0189	VRS-CY1JF123JY	RES 0603 12KOHM 5% 1/10W SMD	S AA	AA
R 0191	VRS-CY1JF273JY	S CHIP RES. 27-OHM TAPED	S AA	AA
R 0192	VRS-CY1JF221JY	RES 0603 220 OHM 5% 1/10W SMD	S AA	AA
R 0193	VRS-CY1JF750JY	S CHIP RESISTOR 75 OHM	S AA	AA
R 0194	VRS-CY1JF680JY	RES 0603 68 OHM 5% 1/10W SMD	S AA	AA
R 0197	VRS-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0198	VRS-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0201	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0203	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/10W SMD	S AA	AA
R 0204	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0205	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0206	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0207	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0208	VRS-CY1JF471JY	RES 0603 470 OHM 5% 1/10W SMD	S AA	AA
R 0209	VRS-CY1JF471JY	RES 0603 470 OHM 5% 1/10W SMD	S AA	AA
R 0210	VRS-CY1JF222JY	RES 0603 2.2KOHM 5% 1/10W SMD	S AA	AA
R 0211	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0212	VRS-CY1JF473JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0213	VRS-CY1JF473JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0216	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0217	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0222	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0223	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0224	VRS-CY1JF123JY	RES 0603 12KOHM 5% 1/10W SMD	S AA	AA
R 0225	VRS-CY1JF123JY	RES 0603 12KOHM 5% 1/10W SMD	S AA	AA
R 0226	VRS-CY1JF472JY	RES 0603 4.7KOHM 5% 1/10W SMD	S AA	AA
R 0227	VRS-CY1JF473JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0228	VRS-CY1JF473JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0229	VRS-CY1JF102JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0230	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0231	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0233	VRS-CY1JF472JY	RES 0603 4.7KOHM 5% 1/10W SMD	S AA	AA
R 0244	VRS-CY1JF472JY	RES 0603 4.7KOHM 5% 1/10W SMD	S AA	AA

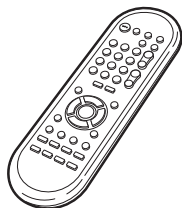
REF No.	PARTS	DESCRIPTION	SN CODE	EX CODE
R 0245	VRS-CY1JF473JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0246	VRS-CY1JF473JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0247	VRS-CY1JF102JY	RES 0603 1KOHM 5% 1/10W SMD	S AA	AA
R 0248	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0249	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0250	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0257	VRS-CZ1JF102JY	RES 0402 1KOHM 5% 1/16W SMD	S AA	AA
R 0258	VRS-CZ1JF472JY	RES 0402 47KOHM 5% 1/16W SMD	S AA	AA
R 0266	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0284	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0292	VRS-CZ1JF473JY	RES 0402 47KOHM 5% 1/16W SMD	S AA	AA
R 0293	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0295	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0296	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0298	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0299	VRS-CZ1JF472JY	RES 0402 47KOHM 5% 1/16W SMD	S AA	AA
R 0300	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0302	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0304	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0305	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0320	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0321	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/10W SMD	S AA	AA
R 0323	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0324	VRS-CZ1JF750JY	RES 0402 75 OHM 5% 1/16W SMD	S AA	AA
R 0325	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0327	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0328	VRS-CY1JF123JY	RES 0603 12KOHM 5% 1/10W SMD	S AA	AA
R 0329	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0330	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0332	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0333	VRS-CY1JF123JY	RES 0603 12KOHM 5% 1/10W SMD	S AA	AA
R 0345	VRS-CY1JF101JY	RES 0603 100 OHM 5% 1/10W SMD	S AA	AA
R 0347	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0348	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0349	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0390	VRS-CY1JF102JY	RES 0603 1KOHM 5% 1/10W SMD	S AA	AA
R 0391	VRS-CY1JF102JY	RES 0603 1KOHM 5% 1/10W SMD	S AA	AA
R 0392	VRS-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0397	RFLN0643VAPZN	FERRITE 0402 SMD JIS 1005 MMZ1005F330C	S AA	AA
R 0398	RFLN0643VAPZN	FERRITE 0402 SMD JIS 1005 MMZ1005F330C	S AA	AA
R 0399	VRS-TW2HPR56JY	RES LCR1/AR15T 0.56 OHM 5% 1/2W SMD	S AA	AA
R 0360	VRS-TW2HPR56JY	RES LCR1/AR15T 0.56 OHM 5% 1/2W SMD	S AA	AA
R 0361	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0362	VRS-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0363	RBLN-A533WJZZY	FERRITE SMD ARRAY JIS 1005 MZA2010F330C	S AA	AB
R 0364	RBLN-A533WJZZY	FERRITE SMD ARRAY JIS 1005 MZA2010F330C	S AA	AB
R 0365	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0367	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0371	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0374	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0375	RFLN0643VAPZN	FERRITE 0402 SMD JIS 1005 MMZ1005F330C	S AA	AA
R 0378	RFLN0643VAPZN	FERRITE 0402 SMD JIS 1005 MMZ1005F330C	S AA	AA
R 0379	RBLN-A533WJZZY	FERRITE SMD ARRAY JIS 1005 MZA2010F330C	S AA	AB
R 0380	RBLN-A533WJZZY	FERRITE SMD ARRAY JIS 1005 MZA2010F330C	S AA	AB
R 0381	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0382	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0391	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0394	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0397	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0398	VRS-CZ1JF682FY	RES 0402 6.8KOHM 1% 1/16W SMD	S AA	AA
R 0403	VRS-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0404	VRS-CZ1JF101JY	RES 0402 100 OHM 5% 1/16W SMD	S AA	AA
R 0407	VRS-CZ1JF000JY	RES 0402 0 OHM 5% 1/16W SMD	S AA	AA
R 0413	VRS-CZ1JF100JY	RES 0402 10 OHM 5% 1/16W SMD	S AA	AA
R 0414	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0415	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0417	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0418	VRS-CZ1JF103JY	RES 0402 10KOHM 5% 1/16W SMD	S AA	AA
R 0419	VRS-CY1JF100JY	RES 0603 10 OHM 5% 1/10W SMD	S AA	AA
R 0420	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0421	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0422	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0423	VRS-CY1JF220JY	RES 0603 22 OHM 5% 1/10W SMD	S AA	AA
R 0424	VRS-CY1JF103JY	RES 0603 10KOHM 5% 1/10W SMD	S AA	AA
R 0425	VRS-CZ1JF220JY	RES 0402 22 OHM 5% 1/16W SMD	S AA	AA
R 0426	VRS-CY1JF473JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0427	VRS-CY1JF472JY	RES 0603 47KOHM 5% 1/10W SMD	S AA	AA
R 0447	VRS-CZ1JF102JY	RES 0402 1KOHM 5% 1/16W SMD	S AA	AA
R 0448	VRS-CZ1JF152JY	RES 0402 15KOHM 5% 1/16W SMD	S AA	AA
R 0450	VRS-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0452	VRS-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0453	VRS-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0455	VRS-CZ1JF470JY	RES 0402 47 OHM 5% 1/16W SMD	S AA	AA
R 0482	VRS-CZ1JF221JY	RES 0402 220 OHM 5% 1/16W SMD	S AA	AA
R 0484	VRS-CZ1JF221JY	RES 0402 220 OHM 5% 1/16W SMD	S AA	AA
R 0485	VRS-CZ1JF472JY	RES 0402 47KOHM 5% 1/16W SMD	S AA	AA
R 0486	VRS-CZ1JF472JY	RES 0402 47KOHM 5% 1/16W SMD	S AA	AA
R 0498	VRS-CZ1JF472JY	RES 0402 47KOHM 5% 1/16W SMD	S AA	AA



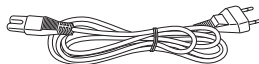
	REF No.	PARTS	DESCRIPTION	* SN CODE	EX CODE
	RM/C5101	RRMCUA053W/JZZ	R/C RECEIVER UNIT	S AA	AD
	SLD5101	PSLDPA076W/JFW	SHIELD CASE	S AA	AA
<b>DUNTKF534WE02</b>					
<b>KEY Unit</b>					
<b>RESISTORS</b>					
	R 4051	VRD-RA28E822JY	RES 8.2KOHM 5% 1/8W	S AA	AA
	R 4052	VRD-RA28E123JY	RES 12K OHM 5% 1/8W	S AA	AA
	R 4053	VRD-RA28E822JY	RES 8.2KOHM 5% 1/8W	S AA	AA
	R 4054	VRD-RA28E123JY	RES 12K OHM 5% 1/8W	S AA	AA
<b>MISCELLANEOUS PARTS</b>					
	P 4051	QCNCWA012JDE0	CONNECTOR S4B-EH	S AA	AA
	S 4051	QSW-K0003AJZZ*	SWITCH EVQ-11A-05R_A MATSUSHITA	S AA	AA
	S 4052	QSW-K0003AJZZ*	SWITCH EVQ-11A-05R_A MATSUSHITA	S AA	AA
	S 4053	QSW-K0003AJZZ*	SWITCH EVQ-11A-05R_A MATSUSHITA	S AA	AA
	S 4054	QSW-K0003AJZZ*	SWITCH EVQ-11A-05R_A MATSUSHITA	S AA	AA
	S 4055	QSW-K0003AJZZ*	SWITCH EVQ-11A-05R_A MATSUSHITA	S AA	AA
	S 4056	QSW-K0003AJZZ*	SWITCH EVQ-11A-05R_A MATSUSHITA	S AA	AA
	S 4057	QSW-K0003AJZZ*	SWITCH EVQ-11A-05R_A MATSUSHITA	S AA	AA
<b>LE225E/LE225EB</b>					
<b>POWER Unit</b>					
△		RDENCA409W/JQZ	POWER WITH LED driver 32" (FSP119-3FS01) - 32LE225E	S BA	BQ
△		RDENCA411W/JQZ	POWER WITHOUT LED DRIVER 32" FSP129-4F01 - 32LE225EB	S AY	BM

## Supplied accessories

Remote control unit  
(× 1)



AC cord (× 1)

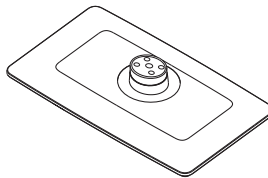


Product shape varies in  
some countries.

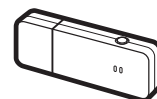
• “AA” size zinc-carbon battery (× 2)

• Operation manual

• Stand unit (x1)



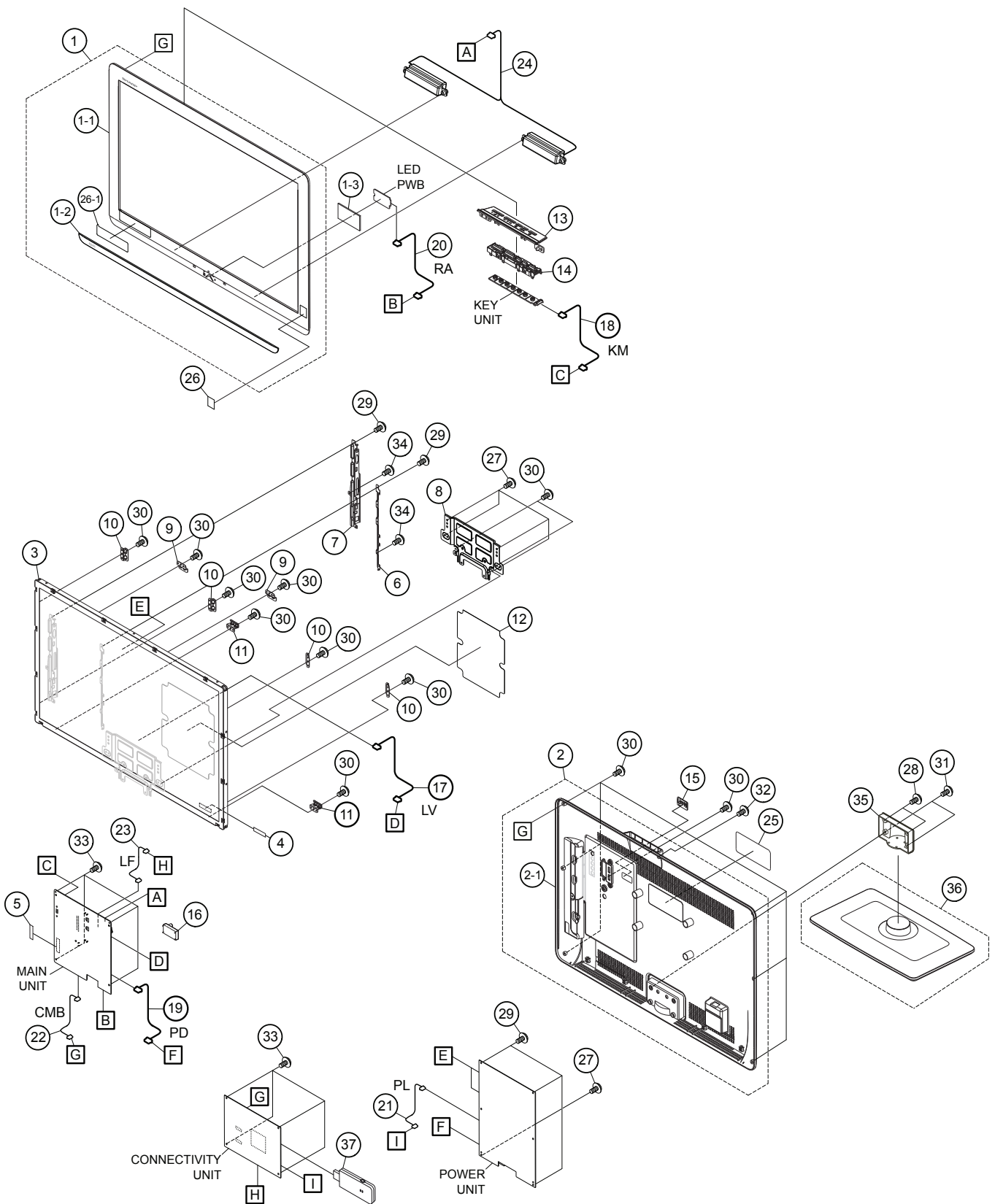
• Wireless LAN USB  
adapter (x1)



REF No.	PARTS	DESCRIPTION	+	SN CODE	EX CODE
<b>LE225E CABINET PARTS LISTING</b>					
1	CCABAC586WJ05	KS-CAB-A LC32.	S	AU	BF
1-1	GCABAC586WJ1A	Cabinet.	S	--	--
1-2	HDECQB503WJ1C	Decoration panel.	S	--	--
1-3	PSHEPB110WJKZ	Diffuser sheet.	S	AA	AB
2	CCABBB8915WJ01	KS-CAB-B LC32.	S	AT	BE
2-1	GCABBB8915WJ1A	Rear Cabinet.	S	--	--
3	RILK315D3LF31Y	PANEL 32" 50Hz T315HW05 V4 FULL HD AUO-32LE225E	S	QV	DL
4	TLABND978WJZZ	Panel Label.	S	AA	AA
5	TLABN0134BMZZ	Chassis Label.	S	--	--
6	LANGKD077WJFW	Angle (Main).	S	AB	AE
7	CAN6KD076WJ01	Angle (Main), (connectors area).	S	AE	AP
8	LANGKC939WJFW	Stand Angle.	S	AE	AM
9	LANGKD007WJFW	Panel Brackets TOP-32LE225E	S	AA	AB
10	LANGKC945WJFW	Panel Brackets CENTER	S	AA	AB
11	LANGKD008WJFW	Panel Brackets BOTTOM-32LE225E	S	AA	AB
12	PZETKA568WJKZ	Insulation sheet.	S	AF	AR
13	GCOVAD819WJ1A	Control Cover	S	--	--
14	J8TN-A887WJ1A	Control Button.	S	--	--
15	GCOVAE024WJ1A	HDMI Cover	S	AA	AD
16	RTUDAA065WJQZ	Tuner TDTW-S723D.	S	AM	AX
17	QCNW-L073WJQZ	Wire (LV)-32LE225E	S	AF	AQ
18	QCNW-L533WJQZ	Wire (KM).	S	AB	AD
19	QCNW-L070WJQZ	Wire (PB).	S	AC	AH
20	QCNW-L071WJQZ	Wire (RA).	S	AB	AE
21	QCNW-L402WJQZ	Wire (PL) "12V"	S	AB	AF
22	QCNW-L403WJQZ	Wire (CMB) "UART"	S	AB	AF
23	QCNW-L567WJQZ	Wire (LF) "HDMI"	S	AM	AY
24	RSP-ZA477WJZZ	Speakers.	S	AL	AX
25	TLABNCL17WJZZ	Model Label.	S	AA	AC
26	TLABZC702WJZZ	ECO Label on A_Cab ( Except Russian models).	S	AA	AB
26-1	TLABZC790WJZZ	POP LABEL	S	AC	AH
27	XBB5740P6000	Screw, x5 (Fix Stand angle x4 and Power Pwb x1).	S	AA	AA
28	XBB5740P10000	Screw, x2 (Fix Stand neck to Stand Angle).	S	AA	AA
29	XBP5730P06W50	Screw x5 (Fix Power Pwb x3 and Main angles x2 upper position).	S	AA	AA
30	XEB5730P08000	Screw x17 (Fix Panel Brackets x8, Stand angle to A_Cab x2, Euro x1 and B	S	AA	AA
31	XEB5740P20000	Screw x2 (Fix Stand neck to Stand Angle).	S	AA	AA
32	XEB5930P10000	Screw x1 (Fix A_Cab upper position).	S	AA	AA
33	XHP5730P06W50	Screw x8 (Fix Main Pwb x4 and Connectivity Pwb x4 ).	S	AA	AA
34	XBP5730P06000	Screw x2 (Fix Main angle x1 lower position and Connectors angle x1 lower p	S	AA	AA
35	GCOVAD815WJ1A	Stand Neck	S	--	--
36	CDAT-A742WJ01	KS-Stand.	S	AQ	BB
<b>LE225E ACCESSORIES PARTS LISTING</b>					
37	KI-OUA002WJZZ	Black USB Wi-Fi Adapter WN7522C-SE ARCAD	S	AU	BF
	CCOVAD819WJ01	KS-KEY COVER	S	AD	AK
	DLAB-D023WE01	LABELS SET - 32LE225E	S	--	--
	PSPAZC595WJZZ	DECORATION ADHESIVE	S	--	--
	QACCKA047WJPZ	AC CORD / LP21 L57	S	AC	AH
	RRMCGA918WJ5A	R/C YKF204-020	S	AE	AP
	TINS-E892WJZZ	OWNERS MANUAL LE225E-EB (for Europe + Poland)	S	--	--
	T6AN-B078WJZZ	Warranty Card (for East Europe)	S	AA	AC
	T6AN-B079WJZZ	Warranty Card (for East Europe)	S	AA	AC
	TLABZB310WJZZ	PROCESS LABEL REEL 293m(2.930Unit) 100mm	S	AA	AA
	UBATUA023WJZZ	BATTERY R6UWC/25KD x2	S	AA	AC
	HINDPD988WJ1A	INDICATOR	S	--	--
	LANGKD076WJFW	TERMINAL BRACKET	S	--	--
	HDECQB506WJ1A	LED DECORATION	S	--	--
	6DAI-A686WJ1A	STAND	S	--	--
	TLABM5584BMZZ	PAPER LABEL / ON CARTON BOX	S	AA	AB
<b>LE225E PACKING PARTS LISTING</b>					
	SPAKCG299WJZZ	PACKING CASE	S	AE	AQ
	SPAKPB565WJZZ	HOSO-PP	S	AC	AG
	SPAKXD005WJZZ	PACKING ADD	S	AE	AP

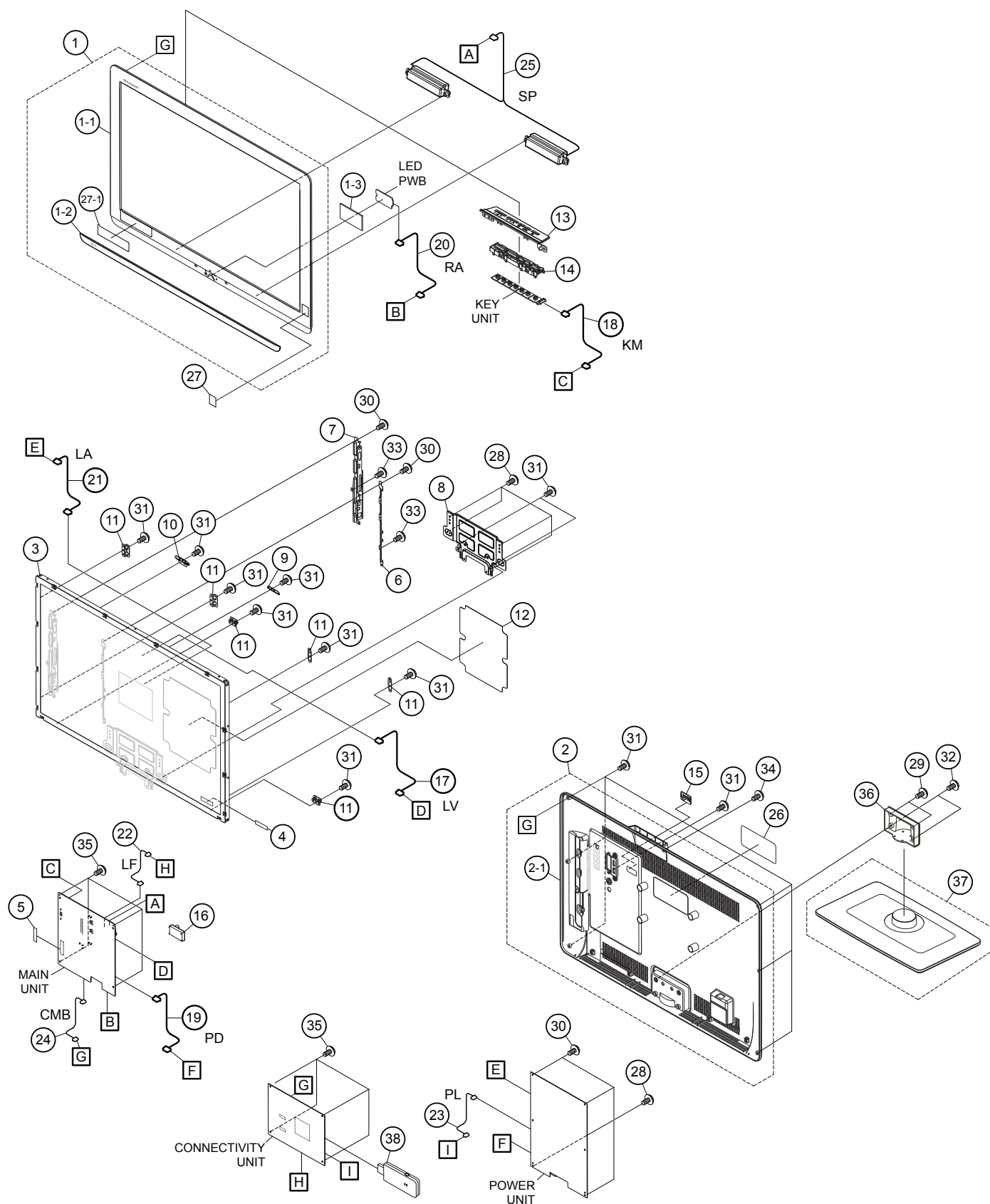
REF No.	PARTS	DESCRIPTION	+	SN CODE	EX CODE
<b>LE225EB CABINET PARTS LISTING</b>					
1	CCABAC586WJ05	KS-CAB-A LC32.	S	AU	BF
1-1	GCABAC586WJ1A	Cabinet.	S	--	--
1-2	HDECQB503WJ1B	Decoration panel.	S	--	--
1-3	PSHEPB110WJKZ	Diffuser sheet.	S	AA	AB
2	CCABBB8915WJ01	KS-CAB-B LC32.	S	AT	BE
2-1	GCABBB8915WJ1A	Rear Cabinet.	S	--	--
3	RILK315D3LF22Y	PANEL 32" FHD CMI LED V315H3-L3-32LE225EB	S	CL	DG
4	TLABND978WJZZ	Panel Label.	S	AA	AA
5	TLABN0134BMZZ	Chassis Label.	S	AA	AA
6	LANGKD077WJFW	Angle (Main).	S	AB	AE
7	CAN6KD076WJ01	Angle (Main), (connectors area).	S	AE	AP
8	LANGKC939WJFW	Stand Angle.	S	AE	AM
9	LANGKD030WJFW	Panel Brackets TOP RIGHT-32LE225EB	S	AA	AB
10	LANGKD080WJFW	Panel Brackets TOP LEFT-32LE225EB	S	AA	AB
11	LANGKC945WJFW	Panel Brackets LATERAL and BOTTOM	S	AA	AB
12	PZETKA568WJKZ	Insulation sheet.	S	AF	AR
13	GCOVAD819WJ1A	Control Cover	S	--	--
14	J8TN-A887WJ1A	Control Button.	S	--	--
15	GCOVAE024WJ1A	HDMI Cover	S	AA	AD
16	RTUDAA065WJQZ	TUNER TDTW-S723D	S	AM	AX
17	QCNW-L240WJQZ	Wire (LV)-32LE225EB	S	AF	AQ
18	QCNW-L533WJQZ	Wire (KM).	S	AB	AD
19	QCNW-L070WJQZ	Wire (PB).	S	AC	AH
20	QCNW-L071WJQZ	Wire (RA).	S	AB	AE
21	QCNW-L624WJQZ	Wire (LA)-32LE225EB	S	AC	AG
22	QCNW-L567WJQZ	Wire (LF) "HDMI"	S	AM	AY
23	QCNW-L402WJQZ	Wire (PL) "12V"	S	AB	AF
24	QCNW-L403WJQZ	Wire (CMB) "UART"	S	AB	AF
25	RSP-ZA477WJZZ	Speakers.	S	AL	AX
26	TLABNCL17WJZZ	Model Label.	S	AA	AC
27	TLABZC702WJZZ	ECO Label on A_Cab ( Except Russian models).	S	AA	AB
27-1	TLABZC790WJZZ	POP LABEL	S	AC	AH
28	XBB5740P6000	Screw, x5 (Fix Stand angle x4 and Power Pwb x1).	S	AA	AA
29	XBB5740P10000	Screw, x2 (Fix Stand neck to Stand Angle).	S	AA	AA
30	XBP5730P06W50	Screw x5 (Fix Power Pwb x3, and Main Angles x2 upper position).	S	AA	AA
31	XEB5730P08000	Screw x17 (Fix Panel Brackets x8, Stand angle to A_cab x2, Euro x1 and B	S	AA	AA
32	XEB5740P20000	Screw x2 (Fix Stand neck to Stand Angle).	S	AA	AA
33	XBP5730P06000	Screw x2 (Fix Main angle x1 lower position and connectors angle x1 lower p	S	AA	AA
34	XEB5930P10000	Screw x1 (Fix A_Cab upper position).	S	AA	AA
35	XHP5730P06W50	Screw x8 (Fix Main Pwb x4 and Connectivity Pwb x4).	S	AA	AA
36	CCOVAE038WJ01	Stand Neck-32LE225EB	S	AD	AL
37	CDAT-A742WJ01	KS-Stand.	S	AQ	BB
<b>LE225EB ACCESSORIES PARTS LISTING</b>					
38	KI-OUA002WJZZ	Black USB Wi-Fi Adapter WN7522C-SE ARCAD	S	AU	BF
	CCOVAD819WJ01	KS-KEY COVER	S	AD	AK
	DLAB-D025WE01	LABELS SET - 32LE225EB	S	--	--
	PSPAZC595WJZZ	DECORATION ADHESIVE	S	--	--
	QACCKA047WJPZ	AC CORD / LP21 L57	S	AC	AH
	RRMCGA918WJ5A	R/C YKF204-020	S	AE	AP
	TINS-E892WJZZ	OWNERS MANUAL LE225E-EB (for Europe + Poland)	S	--	--
	T6AN-B078WJZZ	Warranty Card (for East Europe)	S	AA	AC
	T6AN-B079WJZZ	Warranty Card (for East Europe)	S	AA	AC
	TLABZB310WJZZ	PROCESS LABEL REEL 293m(2.930Unit) 100mm	S	AA	AA
	UBATUA023WJZZ	BATTERY R6UWC/25KD x2	S	AA	AC
	HINDPD988WJ1A	INDICATOR	S	--	--
	LANGKD076WJFW	TERMINAL BRACKET	S	--	--
	HDECQB506WJ1A	LED DECORATION	S	--	--
	6DAI-A686WJ1A	STAND	S	--	--
	TLABM5584BMZZ	PAPER LABEL / ON CARTON BOX	S	AA	AB
<b>LE225EB PACKING PARTS LISTING</b>					
	SPAKCG299WJZZ	PACKING CASE	S	AE	AQ
	SPAKPB565WJZZ	HOSO-PP	S	AC	AG
	SPAKXD005WJZZ	PACKING ADD	S	AE	AP

# CABINET AND MECHANICAL PARTS LC32LE225E (AUO PANEL)

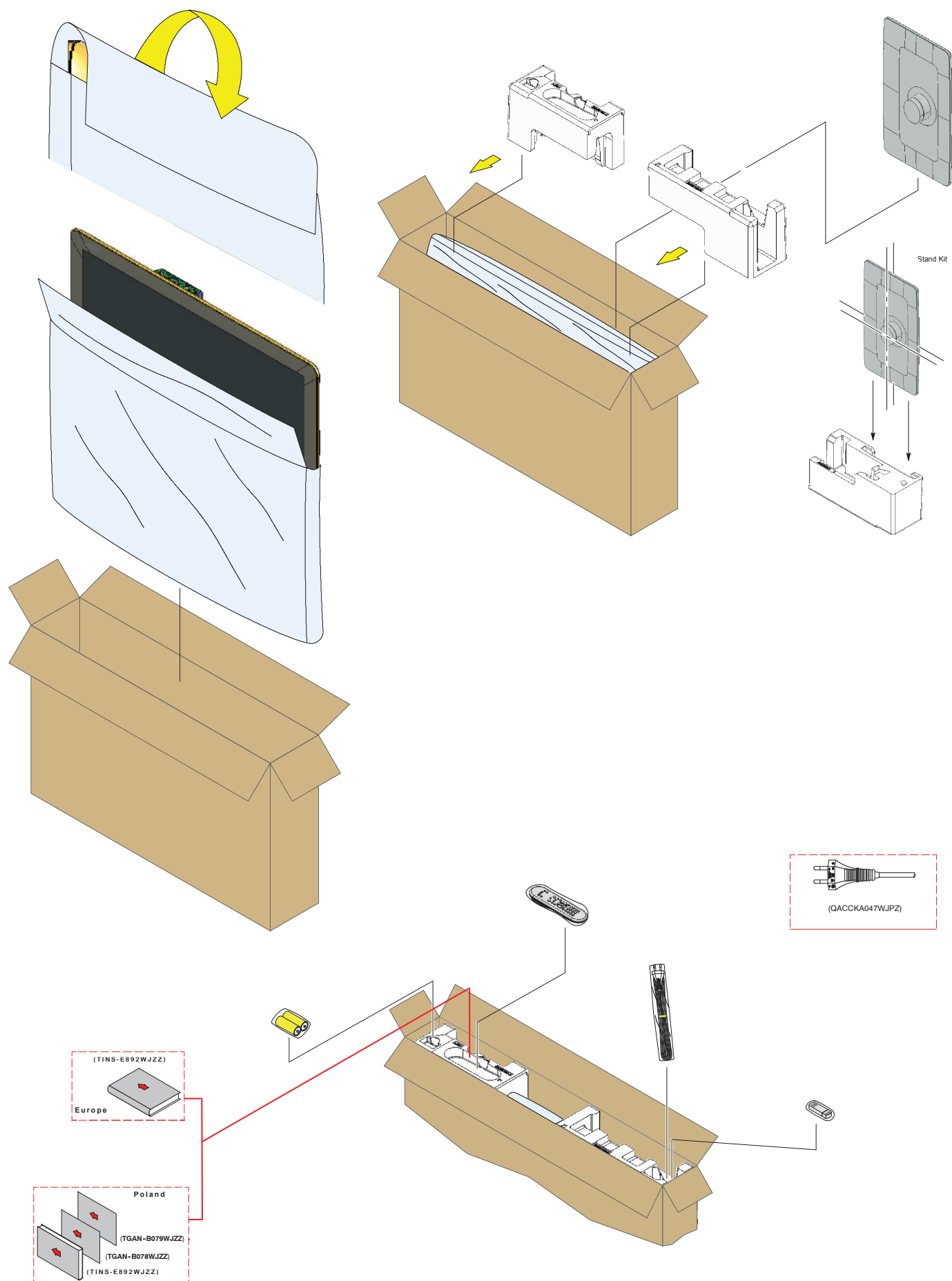




## CABINET AND MECHANICAL PARTS LC32LE225EB (CMI PANEL)



## PACKING OF THE SET







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